

REPORT  
OF THE  
MINISTER OF AGRICULTURE  
FOR THE  
DOMINION OF CANADA  
FOR THE  
YEAR ENDED OCTOBER 31  
1902

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1903



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REPORT  
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*To His Excellency the Right Honourable Sir GILBERT JOHN ELLIOT, Earl of Minto, and Viscount Melgund of Melgund, County of Forfar, in the Peerage of the United Kingdom, Baron Minto of Minto, County of Roxburgh, in the Peerage of Great Britain, Baronet of Nova Scotia, Governor General of Canada.*

MAY IT PLEASE YOUR EXCELLENCY—

I have the honour to submit to Your Excellency the annual report of the Department of Agriculture, for the year ended October 31, 1902.

**I.—GENERAL REMARKS.**

A synopsis of the operations of the Department, which have been efficiently carried out, is laid before Your Excellency.

The legislation affecting the Department during the last session consisted of Chapter 10, 2 Edward VII., intituled ‘An Act to Amend the Fruit Marks Act, 1901.’

By Order in Council of the September 14, 1901, under authority of the Act 1 Edward VII, Chapter 27, intituled ‘An Act to provide for the marking and inspection of packages containing Fruit for Sale,’ the following regulations were made, the same to come into force on the date of their publication in the *Canada Gazette* :—

1. The Minister of Agriculture may make appointments of inspectors and other persons for the enforcement of the Act.

2. Any inspector charged with the enforcement of the Act may detain for the time necessary to complete his inspection any shipment of fruit, in respect of which he has reasonable grounds for believing that the marking of the package or the packing of the fruit constitutes a violation of the Act; such fruit shall at all times be at the risk and charges of the owner thereof; and any inspector detaining fruit shall give the owner, where ascertained, notice that such fruit is being detained, in storage or otherwise, as the case may be.



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3. The despatch of a prepaid telegram or letter to the packer whose name is marked on the package shall be considered due notice.

4. No person shall, for himself or on behalf of any other person, pack any fruit for sale, contrary to the provisions of the Act.

5. Any inspector or other person who violates any of the regulations made under the authority of the Act shall for each offence, on summary conviction, be liable to a fine of not less than five dollars and not exceeding fifty dollars, together with the costs of prosecution.

It is with regret that I have to report the death of two officers of my Department during the past year: Mr. William Bain Scarth, Deputy Minister of Agriculture and Deputy Commissioner of Patents, and Dr. Douglas Brymner, LL.D., F.R.S.C., Archivist. The former died on May 15, and the latter on June 19, 1902.

On February 1, last, Mr. John Gunion Rutherford, V.S., was appointed Chief Veterinary Inspector for the Dominion vice Professor Duncan McEachran, F.R.C.V.S., V.S. Edin., D.V.S. McGill, resigned; and on April 29, last, Mr. Arthur G. Hopkins, V.S., M.D.V., was appointed Veterinary Quarantine Officer for Canada in the United Kingdom for the purpose of testing with tuberculin all cattle for shipment to Canada.

By Order in Council under date May 20, 1902, Mr. George Finley O'Halloran was appointed Deputy Minister of Agriculture and Deputy Commissioner of Patents, vice Mr. W. B. Scarth deceased.

A party of Boers who had been confined as prisoners of war reached Canada by the SS. *Lake Champlain* on Thursday, October 2, last, having been sent out to Canada by the Imperial Government for the purpose of enabling them to study agricultural methods of the Dominion, on the understanding that they will lecture on their experiences upon their return to South Africa.

The party consisted of Mr. and Mrs. Jousté, Mr. and Mrs. Lane, and Mr. Rood, and they were accompanied by Captain J. H. Kirkpatrick, an officer in the South African Constabulary, and Mrs. Kirkpatrick. The party was met on their arrival at Quebec by Mr. G. F. O'Halloran, my Deputy.

Every effort was made to ensure their visit to Canada being a success. Mr. W. W. Moore, an officer of the Dairy Branch of my Department, was selected to accompany the party through Canada, with a view to showing how agriculture is carried on in the different provinces as regards mixed farming, fruit farming, dairying, cattle sheep and horse ranching, and also of showing them something of the lumber and other industries.

At my request the Provincial Governments kindly aided in carrying out the aim of the project by co-operating with my Department, and a representative was appointed in each province to accompany the party through it.

At the termination of their visit to Canada the delegates will proceed from Vancouver to Australia, and thence to South Africa.

The Right Honourable the Secretary of State for the Colonies forwarded with circular letter under date December 28, 1901, copy of the Importation of Dogs Order, 1901, and of a memorandum thereon; also, under date March 11, 1902, copy of a letter from the Board of Agriculture inclosing copy of a further notice which has been



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issued to the press in Great Britain on the above subject. This correspondence will be found as an appendix hereto. (See Appendix No. 54).

Again, during the last year it has been my duty to provide for the representation of Canada at exhibitions. I have found this organization of exhibition work has been so constantly repeated that it has become almost a permanent branch of the Department. From the experience gained during the last three years it is to me perfectly evident that officers of experience should be retained for this work, their services being utilized between the actual dates of exhibitions in preparing and planning exhibits. I now have a staff of experienced officers on annual salary whose whole time and attention is devoted to this work. I think I may say that the result of this organization has been very beneficial, and that Canada has thereby been enabled to make a more comprehensive and representative display than she otherwise might be able to do, especially in those of her products in which no one individual or firm could be expected to make a representative national display. These are our agricultural, forestry and mineral products, with food products as a natural adjunct to the agricultural exhibit.

The exhibitions in which Canada participated this year were those of Wolverhampton, in the midlands of England, and Cork, in Ireland. At both of these exhibitions we erected a Canadian pavilion, having found from our experience at Paris, where we were placed with other colonies and nations, and at Glasgow where we had part of our exhibits mixed up with those of other countries, and part of it in a pavilion by itself, that a separate special Canadian pavilion is far more effective in drawing attention to the Canadian exhibits and enabling us to make a favourable impression on the visitors. Where space is charged for, as has usually been the case in these exhibitions, it costs hardly any more to erect a special pavilion as we have done than it would to purchase space in the large buildings.

At Wolverhampton the exhibition was in the centre of one of the densest consuming populations of Great Britain, where we were able to show to those people the excellent quality and enormous quantity of our Canadian foods and manufactures.

In Cork, where the exhibition was on a smaller scale, we also wished to show Canadian products and impress the people who are still emigrating in considerable numbers, with the advantages of Canada as a home. This latter object was not lost sight of either at Wolverhampton. Mr. W. D. Scott, now for over three years one of my exhibition commissioners, was in charge of these two exhibitions, and in a practical, effective business way put them through very successfully.

While Mr. Hay, who has charge of the agricultural and general decorations at our exhibitions, was at work at Wolverhampton and Cork, the Immigration Department conceived the idea of a Canadian arch in London in honour of the coronation of His Majesty. I was very glad to lend the services of Mr. Hay, who has had much experience of this kind of decorative work, both at the Experimental Farm and at our exhibitions, and I am glad to know that his services were so successful as to materially aid in making the Canadian arch a good and effective representation of Canada,—‘the Granary of the Empire.’

The Wolverhampton and Cork exhibitions are reported to have been successful, and the Canadian exhibits there attracted a great deal of favourable comment and have brought about many inquiries for trade, which will no doubt result to the advantage of the producers of this country.



This year Canada received and accepted an invitation to take part in the great Louisiana Purchase Exhibition at St. Louis, U.S.A., which was announced to take place in 1903. Preparations were commenced for this, which is intended to be the greatest exhibition the world has ever seen. The authorities connected with it propose to spend \$30,000,000 in preparations, and it was, therefore, thought necessary that Canada should make a special effort to appear to advantage. To do this care and thought in planning and time to carry out the work for such an undertaking were required. Mr. William Hutchison, who had been our Commissioner last year at Buffalo, was intrusted with the commencing of this work. During the summer the exhibition authorities decided to postpone the exhibition until 1904, but their work of preparation is steadily going on, and we were obliged to make arrangements with them for the position of the Canadian pavilion and the securing of space for Canadian exhibits. For this purpose Mr. Hutchison has been a good deal occupied during the year, but he has also been able to assume the burden of organizing and managing the Canadian exhibit for the exhibition at Osaka, in Japan, to which we had received an invitation that it was deemed best to accept.

This exhibition at Osaka opens on March 1, and Mr. Hutchison with a small staff at his disposal has prepared a thoroughly representative exhibit of such Canadian products as seem likely to suit the market in the Orient. Here again Canada is to have a special pavilion put up for us by the Japanese authorities, on payment by us of the sum of \$2,500. As the Japanese Empire imports a great deal of food stuffs, as well as lumber and some other items, from the United States, we are making a special effort to show and prove the satisfactory quality of much of our Canadian products so that Canada may share the advantages of this trade. It is thought that in the near future Japan, whose population is increasing very rapidly, and whose imports of food must increase correspondingly, will be a market in the east open to our western provinces somewhat similar, in a minor degree, to the market which our eastern provinces have in Great Britain.

I have again taken occasion to visit the great agricultural gatherings of the country, beginning last December with the Guelph Fat Stock show. More than ever before has this convention assumed a national character, there being representatives present from almost every province in the Dominion. The plan of gathering there the lecturers and workers in agricultural instruction, for the purpose of exchanging views and getting the best and latest information for use in their work, has more and more developed. My Department, through the Live Stock Commissioner, Mr. Hodson, again managed the lectures and meetings which are a part of this convention.

The contests in what are known as the block tests, in which the animals that have competed in the ring alive are slaughtered and judged on their merits as food, were again a feature of the fair, specially in connection with the bacon carcasses. There is no doubt that this work is contributing largely to the steady advance of our bacon trade. The success of the Guelph fair and its value to our agriculture presses on my attention the importance of similar fairs in other parts of the country; and, working again through the Live Stock Commissioner, I urged the establishment of a Fat Stock Show at Amherst, Nova Scotia, for the benefit of the three Maritime Provinces, and I authorized Mr. Hodson to make such use of the officers of my Department as might be necessary to aid in this fair. The town of Amherst and the people of that neighbourhood put up a good building, and the Local Governments of the Maritime Provinces aided in the enter-



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prise. The result was a wonderfully successful meeting for a first effort. The enterprise was so well received that the town of Amherst immediately took steps to put up a larger and better permanent building, and those who were engaged in the organization have made arrangements by which this fair will be a permanent feature of the agricultural year in the Maritime Provinces. I have no doubt it will contribute very materially to improvement in agriculture in that part of Canada. I trust to see others established in the near future in other parts of the country.

I also attended the Eastern Dairymen's Association meeting at Whitby, an unusually large and successful meeting of that organization; the Huntingdon Dairy Association meeting at Howick; the district of Bedford Dairy Association meeting at Cowansville, and the Eastern Ontario Good Roads Association meeting in Ottawa, besides many smaller and more local agricultural meetings in the country.

I must refer to the movement in favour of good roads in Canada as one intimately bound up with agricultural progress. And it is gratifying to know that the farmers are taking up this question in a most practical and business-like way, with results that will help very much to make our rural life more agreeable and easier. Your Excellency and Lady Minto were good enough to attend the meeting at Ottawa, and your presence there will stimulate and encourage those who are working for this object.

During the year my officers have more than ever before taken part in the management and organization of what we may call enlarged institute meetings, in different parts of Canada, co-operating with the Provincial Governments where these have inaugurated such meetings.

I personally arranged for, and was present at four large meetings in the province of Quebec amongst our French farmers: one at St. Hyacinthe on July 22, and three at Louiseville, Roberval and Chicoutimi in the middle of August.

This was my first opportunity of visiting what is called the Lake St. John country. I was much struck with the evident fertility of the soil, the proof of which was everywhere visible in the splendid crops; while the thrift, industry and enterprise of the people who have opened up that region to agriculture is much to be praised. The meetings which were held were largely attended by most intelligent and enthusiastic farmers. The farms which I had an opportunity of inspecting showed that much intelligent labour had been applied to the clearing of the land and erection of buildings. I was especially struck with the excellent crops of wheat, which seems to be most successfully grown. There is a very large dairy product, and the factories which I visited were equal to those in any other part of Canada. There is an active movement to import the best quality of live stock and increase the numbers kept. Poultry and swine raising is being much inquired about, and will no doubt, in the near future, be a most profitable source of income to this region. I was surprised to note the wide area of good land of easy cultivation and great productive capacity. This region has made so much progress in the last 25 years that there seems no reason to doubt it is destined to be one of the most populous and prosperous parts of our country.

I took the opportunity while in Quebec of paying a visit to the Quarantine Station for the St. Lawrence at Grosse Isle. Most of the buildings at this station had been hastily erected many years ago when there was a large number of immigrants detained there. These were no longer suitable for the needs of such a station, and this summer



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more improvements than ever have been making for the purpose of properly and adequately providing for the numbers of immigrants who may be at any moment detained there through the discovery of contagious disease on incoming ships. The stream of immigration from the old country having largely increased during the last few years this improvement was necessary; and it was the more called for from the fact that at this time even the steerage passengers on the ships have very superior accommodation to what used to obtain, and therefore expect equally superior accommodation when put on shore at our quarantine stations. Especially were improvements in the sanitary arrangements necessary. Complete plumbing, with baths and closets, all through even the steerage buildings, have now been provided. This was possible only since the water system was completed last year. I venture to say that with the completion of the work undertaken this year the station will be thoroughly adequate to any ordinary demands upon it, and, with the exception of some minor improvements to be made next year, is thoroughly satisfactory.

I am happy to be able again to congratulate the country on a most prosperous agricultural year. Notwithstanding the enormous crop which our North-west produced last year, it has been exceeded in the present season, and I can venture again to prophesy that in the years to come it will constantly increase in a most marvellous manner. The agricultural production of Eastern Canada has been full to overflowing this year. Butter and cheese have been produced and exported in much larger quantities than ever known before, while the prices have been so high that the value of the exports is much the greatest in the history of our country. The pork industry has also been stimulated by the very high prices and, although the increase in quantity is not so very great, the increase in value is most satisfactory. Poultry and egg production have been again much stimulated. The only difficulty in fact in regard to these products is that the buyers cannot find in Canada enough to meet their demands. This may also be said of our hog products. It is indeed a fact that this year in Canada farmers could have sold far more than they had to sell, at prices which were uniformly profitable; the only difficulty that has appeared in our agriculture in Canada being the lack of labour to produce what we could sell and to develop an increased area of productive fields.

In noting the lamented death of my late Deputy Mr. Scarth, I must refer to the appointment of Mr. George F. O'Halloran as Deputy in my Department, feeling most gratified to obtain the services of a gentleman so well equipped for the work. The Department has so many branches which are not at all agricultural in their nature that I required a Deputy who could deal with these, and therefore selected a trained lawyer; the purely agricultural branches being under such specialists as Professor Saunders, Professor Robertson and Dr. Rutherford.

In connection with the Veterinary Branch some events occurred in the earlier part of the year which impressed more strongly than ever upon me the opinion, which has been gradually growing from my experience, that it was necessary that the head of the Veterinary Branch should reside in Ottawa and devote his whole time and attention to the management of this work. Dr. McEachran, who had been for many years the Chief Veterinary Inspector, found it impossible from the multiplicity of his private concerns to meet this requirement. He therefore resigned the active work of Chief Veterinary Inspector, but I was able to retain his services as Advising Veterinary Officer at the same time that I appointed Dr. J. G. Rutherford, Chief Veterinary Inspector. The



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new arrangement is working most satisfactorily, and it is evident that the demands of the branch require the full time and attention of the Chief Officer.

I am happy to be able to say that another year of the working of the 'Fruit Marks Act' has still more shown the utility of this law. Constant reports have come from Great Britain to show that our apples especially, and our fruit generally, are packed more evenly according to the grade marked upon them. Unfortunately this season has not been a good fruit year, in Nova Scotia especially, while even in Ontario and Quebec the quality has not been up to the usual Canadian standard. Even with this difficulty the packing of our fruit has been favourably commented upon in England. We have been enforcing the Act rather more strictly, and paying more attention through the efforts of our Inspectors, to the marketing of fruit in Canada under the Act, with the result that a larger number of prosecutions have been taken out by my officers under the Act notwithstanding the fact that in general the packing of the fruit has been decidedly improved. The invariable success of these prosecutions has shown that the Act can be easily and successfully carried out.

The work of compiling the Census schedules has been carried forward during the year, and the first volume has gone through the press. It deals altogether with population, in the various phases of families, sexes, conjugal conditions, religions, origins, nativities and nationalities. In the ten years 1881-1891 the population grew from 4,324,810 to 4,833,239, and in the ten years 1891-1901 from 4,833,239 to 5,371,315, the increase in the former decade being 508,429 and in the latter 538,076. In Manitoba, the North-west Territories and British Columbia the increase in the last decade was 275,330, and the total population of those parts of the Dominion is shown to be 592,808. The land and water area of Canada above tide level is 3,745,574 square miles, and the largest province is British Columbia, which has an area of 372,630 square miles or nearly one-tenth of the whole. Quebec stands second, with an area of 351,873 square miles, and Ontario third with 260,862 square miles. The smallest province is Prince Edward Island, which has an area of only 2,184 square miles. But in density of population the island ranks first, having 47.28 per square mile. Nova Scotia is second with 21.45, New Brunswick third with 11.83, Ontario fourth with 8.37, Quebec fifth with 4.78, and Manitoba sixth with 3.46 per square mile. In British Columbia and the North-west Territories the population is less than one per square mile and for the whole Dominion it is 1.43, which shows that we possess an enormous field for settlement. By origins, 3,063,195 or 57.03 per cent are British, 1,649,371 or 30.71 per cent are French, 310,501 or 5.78 per cent are German, and 348,248 or 6.48 per cent are of various origins. By nativities, 4,671,815 or 86.98 per cent were born in Canada, 405,883 or 7.56 per cent in the British Islands and possessions, and 293,617 or 5.46 per cent in foreign countries, at sea, and not given. The total number of immigrants from foreign countries is 278,788, of whom 153,908 are naturalized citizens and 124,880 are aliens. But as 159,283 of the whole number arrived during the 5½ years preceding the date of the Census it is apparent that the immigrants are merging fast into citizenship. Immigrants born in the United States number 127,899, and of these 87,049 are naturalized. The only people who adhere to their own nationality are the Chinese, as less than four per cent of the 17,043 born in China are Canadians. The rural population of the country is 3,349,516 and the urban is 2,021,799, the latter embracing all incorporated cities, towns and villages. There are 62 cities and towns of over 5,000, whose total population is 1,321,109. In 1891 there were 45 cities and towns of this class, and their total population was 1,021,819.



II.—ARTS AND AGRICULTURE.

BRANCH OF COMMISSIONER OF AGRICULTURE AND DAIRYING.

The general object of the work in the Branch of the Commissioner of Agriculture and Dairying is to render assistance towards the improvement of all agricultural products, including the means and methods of their production, transportation and marketing with particular regard to those which may be grouped under the name of food products.

The export commerce of the country in most of the farm products is increasing at a very rapid rate. The following statement of the value of the exports of some of the farm products of Canada during the years 1896 to 1902, shows the growth in that period and indicates somewhat of the great possibility for further expansion of this trade :—

VALUE OF SOME CANADIAN FARM PRODUCTS EXPORTED FROM 1896 TO 1902.

(Years ending June 30.)

	1896.	1897.	1898.	1899.	1900.	1901.	1902.
	\$	\$	\$	\$	\$	\$	\$
Wheat .....	5,771,521	5,544,197	17,313,916	7,784,487	11,995,488	6,871,939	18,688,092
Flour.....	718,433	1,540,851	5,425,760	3,105,288	2,791,885	4,015,226	3,968,850
Oats.....	273,861	1,655,130	3,041,578	3,268,388	2,143,179	2,490,521	2,052,559
Oatmeal.....	364,655	462,949	554,757	396,568	474,991	467,807	344,332
Pease.....	1,299,491	2,352,891	1,813,792	1,955,598	2,145,471	2,674,712	1,805,718
Cattle.....	7,082,542	7,159,388	8,723,292	8,522,835	9,080,776	9,064,562	10,663,819
Sheep and lambs.....	2,151,283	1,002,011	1,272,077	1,540,857	1,894,012	1,625,702	1,483,526
Cheese .....	13,956,571	14,676,239	17,572,763	16,776,765	19,856,324	20,696,951	19,686,291
Butter.....	1,052,089	2,039,173	2,046,686	3,700,873	5,122,156	3,295,663	5,660,541
Pork, bacon and hams.....	4,446,884	5,871,988	8,092,930	10,473,211	12,803,034	11,829,820	12,457,863
*Poultry.....	18,992	56,792	97,473	139,759	210,822	141,518	238,047
Eggs.....	807,086	978,479	1,255,304	1,267,063	1,457,902	1,691,640	1,733,242
†Fruits.....	1,716,278	2,987,839	1,709,360	3,596,415	3,305,662	2,006,235	1,922,304
Totals.....	39,659,686	46,377,927	68,919,688	62,528,107	73,281,702	66,872,296	80,705,184

\* Dressed and undressed.  
† Including green, dried, canned and preserved.

The increase in the production of foods from agriculture is greater than is shown in the preceding table. The consumers in Canada have been augmented greatly by the development of mining and allied industries, by the enlargement of lumbering and the establishment of large concerns for the making of wood pulp and paper, by the expansion of commerce and manufactures and the consequent enlargement of population in cities and towns, and by the phenomenal increase in the traffic on railways and steamships. The general prevalence of good times has led also to a more generous consumption of food stuffs in the home markets. Notwithstanding those facts the value of the exports of the products referred to, produced in Canada, has increased from 39 million dollars worth in 1896 to 80 million dollars worth in 1902.



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The remarkable increase is due in a great measure to the progress the farmers are making (1) in ability to manage successfully the conditions which surround them, (2) in intelligence as applied to their own tasks and difficulties, and (3) in co-operation among themselves and with the interests and persons having to do with the commerce and transportation of farm products.

In soil and climate—the two physical conditions which determine the sorts of food that can be produced—Canada is unsurpassed in suitability for turning out fine qualities of the main foods of the northern peoples of the world. For instance, cattle and cattle products are better in northern than in southern countries. Luxuriant growth of fodder crops, sweet pastures, abundance of pure water in springs, creeks, streams, rivers and lakes, comparatively cool evenings and nights in summer, are all favourable to the production of meats, cheese and butter of the finest flavours and highest nutritive properties. The cereals grown in our northern regions are better than those grown in southern climes. Our wheat contains more gluten than that grown in countries further south; and the flour made from it also contains a higher percentage of flesh-forming or nourishing parts. These are advantages which afford the farmers of Canada opportunities for still further application of intelligence, practical ability and co-operation.

## THE OPERATIONS OF FARMING.

Although the conditions for profitable farming are favourable, the difficulties in the way become greater and more numerous every year. Some of them arise from the partially exhausted condition of the soil in localities; and from the need for maintaining or increasing the fertility in all places. The simple cultivation which prepared a suitable seed-bed out of virgin soil is no longer sufficient. Weeds, the thieves of plant food, insect pests and fungous diseases, are ever present troubles. The greatest difficulties are of four sorts: (1) Those which beset the farmers in the growing of crops; (2) those which arise from the demands of markets for superior qualities of all products; (3) those which come from the change to diversified or mixed farming; and (4) those which result from the world-wide keen competition in the markets to which the surplus of Canadian farm products are sent.

The Department of Agriculture continues to help the farmers in all these matters. Where it has no power to remove difficulties it endeavours to furnish information which can assist the farmers to overcome them with the least expense and the greatest benefit to themselves.

After a farmer has decided upon the acreage of the different crops he will put in, there remains the matter of selecting the seed for each crop to be sown or planted. It is not enough that a variety of seed with a popular name be chosen. In addition to the merits of any particular variety, it is of vital importance to the crop that the seed should be vital, sound, plump, well-matured, free from weeds, and, if practicable, from a crop with a record, in the locality, of desirable market qualities and large yields per acre.

The preparation of a reasonably clean seed bed of fine tilth, by such cultivation as will help to make the plant food in the soil available to the coming crop, and the systematic rotation of crops, are parts of farm practice too often neglected. Not less necessary is it that there should be natural or artificial drainage to make possible the retention of moisture in the soil, with a physical condition permitting the access of air and the maintenance of a temperature in the soil favourable to plant growth.



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The feeding of the crops or part of them to live stock is essential to successful mixed farming in Canada; and the better the crop of cereals, fodders and roots, the better is the chance to make the live stock on the farm pay. The feeding of live stock makes provision for using up some inferior grains and other things not saleable, and for turning them into superior qualities of animal products. To do that profitably gives room for the exercise of skill, wide exact knowledge and true economy. Since a large portion of the bulky crops from mixed or diversified farming is fed to live stock, the annual profits, and the chance for increasing those profits, depend upon the quality of the animals fed.

Progressive improvement of live stock has been hindered more or less from want of continued attention year after year to the formation of a definite type of body suited to the main purpose of each breed of every sort of live stock. The climate of Canada and its suitability for growing large crops of wholesome nutritious forage plants, make it possible for this to be a breeding ground for the best types of live stock. To succeed it is evident that educational work must be pushed wisely and energetically. If that be done there does not appear any reason why the breeding of horses, the breeding of beefing types of cattle, the breeding of sheep, and the breeding of poultry for fattening, should not make hereafter as much advance per year as has been made in the development of dairying and of the cheese, butter and bacon trades.

A marked improvement is evident in the stabling of horses, cattle and swine. Numerous buildings are constructed every year, well lighted, comfortable and convenient. Sufficient attention has not yet been paid generally to the ventilation of stables.

On the whole the live stock is fed with greater economy as the relative values of feeding stuffs become better known among farmers. In that respect the practices of the best farmers are readily copied by others.

Another essential to a continuation of good farming is ability to keep up the fertility of the land without purchasing fertilizers to such an extent as to absorb all or most of the profits. The growing of clovers, pease, beans, and other leguminous crops, the feeding of them to live stock and a careful saving of everything on the place that has manurial value, are in the right direction.

The Department directs attention to these fundamental principles which are still apt to be overlooked in farm management, and furnishes information and illustrations of a helpful, educational sort in regard to them.

#### THE PRODUCTS FROM FARMS.

Whether a farmer sells what may be called primitive raw products, such as grain, hay, roots, or other crops, or feeds these to live stock, and markets them in other forms, reduced in volume but increased in value, as in butter, cheese, cattle, swine, poultry, eggs, horses, sheep or wool, he needs reliable information on the qualities of those for which there is likely to be a good demand and a fair price.

Much information of practical value has been obtained from time to time from those engaged in the commerce of agricultural products, and from those who manufacture what may be called the raw products of the farm. Curers of bacon, exporters of cheese and butter, shippers of live stock, flour millers and others, have greatly assisted the Department by specific information on the qualities of products which are in demand



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for the home and export trades. Farmers are becoming more and more alive to the benefits that result from co-operating with such men in those matters.

The employment, by the Department, of inspectors to observe and report upon the condition in which products are loaded upon steamers at Montreal, and other inspectors to watch and report upon the discharge of food products at ports in the United Kingdom; the assistance given at the fat stock shows and in the inauguration of a system of judging by experts at agricultural fairs; the establishment and maintenance of illustration cool curing rooms for cheese; the poultry fattening stations and the investigation into seeds, are all in the direction of helping the farmers towards the improvement of the quality and condition of the products from farms.

Fine food products of a readily perishable character, such as meat, butter, poultry, eggs, and to some extent fruit and cheese, cannot be delivered in distant markets in their best condition without special accommodation for carrying them safely. Any absence of freshness and daintiness of flavour or appearance lessen their value very much. It is evident that the production of such foods, even when carried on in the most skilful and economical manner, cannot be permanently profitable unless means are used for their preservation and protection, so that the consumer may obtain them in an undeteriorated state.

The system of cold storage intended for the protection particularly of butter, meats and tender fruits has made possible large increases in the exports of these products. By the action of the Department a number of ventilated railway cars of special construction were provided for the carriage of cheese and apples; and a beginning was made this year in arranging for the use on the railways of a comparatively large number of refrigerator cars for cheese. Under agreements made with the Department six more steamships in the Atlantic trade were fitted for the circulation of air cooled by refrigerating machinery through the places used for carrying cheese and apples in hot weather.

## GENERAL SCOPE OF THE WORK.

The Branch of the Commissioner of Agriculture and Dairying has several divisions which take up and follow in particular detail the general work which has been mentioned. Some of these are as yet only partially organized. They are the 'Seed Division,' the 'Extension of Markets Division,' the 'Cold Storage Division,' the 'Live Stock Division,' the 'Dairy Division,' the 'Poultry Division,' and the 'Fruit Division.' In addition to the work of each division, which unavoidably in many cases overlaps, other undertakings of a general character looking towards the advancement of agriculture have been carried on during the year.

## THE SEED DIVISION.

## IMPROVEMENT OF CROPS BY SELECTION OF SEED.

The seed grain competition, for which Sir William C. MacDonald of Montreal, donated through Professor Robertson, the sum of \$10,000 for prizes, has continued to be stimulating and instructive not only to the boys and girls who have been operating seed grain plots, but to the farmers in the localities where the work was carried on.



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Over ninety per cent of the reports and samples from the competitors show that improvement in the quality and productiveness of the grain has resulted from sowing in each of three consecutive years, good plump grains, which have been bred up systematically and progressively by selection of seed from the heads of the most vigorous and productive plants in the seed grain plot of the previous year. Improved seed grain is now being grown and bred up in quantity, in this manner, in practically every agricultural district in Canada. The further organization of means and agencies for advancing that practice would be of great benefit to the farmers.

## SEED INVESTIGATION.

It is difficult to judge the actual value of grass, clover and other small seeds from an ordinary examination of their appearance. Few farmers have the time to acquaint themselves with the weed impurities common in such seeds. In consequence, business competition in the seed trade, has been too largely confined to the matter of prices without due attention to quality and cleanness.

From the standpoint of a farmer the real worth of grass and clover seeds is affected most of all by the nature and amount of their impurities. The cost and labour of fighting weeds has become a very important item.

To obtain accurate information regarding the condition of the trade in grass and clover seeds, I authorized the equipment of a modern seed laboratory for testing the purity and vitality of seed. With the assistance of agricultural associations in all the provinces, over five hundred samples containing one-half pound each of timothy, alsike and red clover seeds, offered for sale by seed dealers were forwarded to the seed laboratory for examination. The results from this investigation have brought to light some evils and dangers connected with the seed trade, that are highly injurious to the interests of agriculture.

Evidence of wilful adulteration was found in a few instances; several samples contained from ten to thirty per cent, by weight, of coloured sand. On the whole there has not been serious cause for complaint in the percentage of vitality. It has been made evident that the trade in agricultural seeds is an exceedingly fruitful medium for the dissemination of noxious weeds.

The demand for clover seed for both home and export markets has encouraged their production even on some farms foul with weeds. Much of the best quality of Canadian grown clover seed is exported to countries where it is sold under a guarantee as to purity and vitality and where only the best re-cleaned stocks can find a sale. The inferior qualities with their weed contents have been to far too great an extent reserved for and forced upon our home markets.

The following summary of the results from the analysis of a number of representative samples indicates how little the relative market prices of seeds are determined by their actual value. It shows also how weeds become widely disseminated by impure seed.



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ALSIKE.

Bought at	Price per Bushel.	Per Cent of pure Vital Seed	Cost of pure Vital Seed per Bushel.	No. of Weed Seeds per Pound.
	\$ cts.		\$ cts.	
Sussex, N.B. ....	12 00	46	26 03	27,540
" .....	9 00	63	14 30	6,390
Carleton Place, Ont. ....	7 20	93	7 74	8,879
" .....	7 20	83	8 62	7,248

RED CLOVER.

Yarmouth, N.S. ....	9 00	25	36 00	8,775
" .....	9 00	89	10 11	1,035
Vernon, B.C. ....	9 60	90	10 66	90
" .....	7 50	94	7 97	1,980

TIMOTHY.

St. Hyacinthe, P.Q. ....	3 95	73	5 41	900
" .....	3 45	96	3 68	1,620
Weymouth, N.S. ....	4 00	73	5 48	2,520
" .....	3 50	83	4 69	42,930

It is impossible to estimate the enormous injury inflicted upon farmers because of these abuses in the seed trade. If it were not for the prevalence of noxious weeds in Canada, the net cost of producing crops would be very much decreased.

Undoubtedly the one great cause of the existence of the present condition is ignorance, not only on the part of the farmers but also on the part of the distributing merchants. In order to correct this condition I authorized the preparation and distribution of collections of specimens of weed and also of economic seeds with a view to giving seed merchants and farmers an opportunity to become familiar with them. A bulletin is being issued stating the results of the examination of the samples of seed which were analysed during the present year. By informing farmers of the losses and dangers from using cheap seeds without regard to quality and cleanness, much permanent improvement may be accomplished. This, however, is a slow process and it may be necessary to supplement it by restricting as far as practicable the spread of weed pests through the sale of foul seeds. The results of this, the first year, of the Seed Laboratory make clear the need for wise measures and energetic, persistent efforts to protect Canadian farmers and their fields from the far reaching and long continuing damages which arise from the sale of seed containing noxious impurities.



## EXTENSION OF MARKETS DIVISION.

## AGRICULTURAL PRODUCTS FOR SOUTH AFRICA.

From December, 1899, the Department acted in the capacity of agent for the purchasing and forwarding to South Africa of agricultural products on account of the Imperial War Office, and up to July 14, 1902, the following quantities were shipped in ninety steamer loads:—

Hay .....	203,263 tons (of 2,000 lbs.)
Flour .....	125,815 bags
Oats .....	294,772 “
Beef .....	40,776 cases
Jams .....	11,743 “

An officer of this Department was sent to South Africa in 1900, in connection with some of these shipments. On his return he reported that South Africa offers a splendid market for Canadian products and recommended the establishment of a direct steamship line between Canada and South Africa in order to assist in the development of trade. He found Canadian food products almost unknown in the markets there, although the United States, Australia and New Zealand had a large business in flour, wheat and other cereals, cheese, butter, bacon and hams, potatoes, dried and tinned fruits, canned meats, rolled oats, split peas, beans and tinned vegetables. His report outlined the business procedure followed by New York commission houses. He advised in favour of Canadian exporters adopting a policy of direct representation in South Africa. The report concluded as follows:—‘Owing to the destruction by warfare of public works, mines, buildings, etc., there will be a tremendous demand for timber, building material, agricultural implements, machinery and manufactured articles generally. The trade in food stuffs will be a great and growing one and the imports should be heavy for years to come. Canadians will have to be on the alert if they wish to participate in the steamship expansion of the South African market. With a direct steamship service, keen business representatives, enterprising shippers, who will work for future rather than present profits, and a determination to meet the special requirements of the market, there is nothing to hinder the development of a trade worthy of our people and the resources of our country.’

In November, 1901, I sent the following communication to the High Commissioner for Canada in London:—

‘As you are well aware, my Department has arranged for the shipment of large quantities of hay, oats and other products from Canada to South Africa on account of the Imperial War Office. I venture to hope that these shipments have given the War Office particularly good value. At the same time they have helped to develop the commerce in agricultural products from Canada. Every care has been exercised in the purchase, inspection and shipment of the products. For the month of December some nine steamers have been chartered to carry hay and oats.

‘Considerable attention has been attracted lately to the possibility of developing a general and regular export trade from Canada to the South African colonies. Canada, as you know, is in a good position to supply lumber, timber, other building material and



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all sorts of manufactures of wood ; also pulp and paper ; also wheat or flour, cheese, cured and canned meats, canned fruits ; also wagons, agricultural machinery, and many other articles.

‘ At the present time an obstacle in the way of beginning the trade is the want of regular steamship service between a Canadian port and some port or ports in South Africa.

‘ It has occurred to me that since it is likely that shipments of some products for the War Office will be continued from Canada to South Africa for a number of months, that in connection therewith, accommodation might be provided equal to that of a regular steamship line for freight from Canada on account of merchants who might want to open up this trade. That beginning might lead to a permanent service being established, and the development of a profitable Imperial trade.

‘ I have consulted my colleague Sir Richard Cartwright in this matter, and he agrees with me in the opinion that if an arrangement such as the following could be carried out, it would be to the benefit of both South Africa and Canada and thereby to the interests of the Empire as well.

‘ I beg that you will be so kind as to bring the following inquiries to the attention of the War Office and use your best influence to obtain favourable consideration in the direction indicated :

‘ 1. Whether the War Office would assure to this Department that at least one steamer load of hay or other products from Canada would be taken monthly for a period of say six months or longer.

‘ 2. Whether the War Office would permit this Department to have carried on such steamships from St. John, N.B., to Cape Town or some other port in South Africa such products or merchandise as Canadian shippers might desire to have sent there.

‘ In case of favourable reply from the War Office the Department would be prepared to offer space to Canadian shippers at a rate based on the cost per cubic foot of space occupied.

‘ It would be understood that the hay or other supplies authorized by the War Office would be furnished as at present at the lowest wholesale cost by this Department ; and that the other merchandise or products carried on these ships from Canada would bear their full share of the cost of chartering the steamers, and that no goods of a sort that would damage or endanger the cargo shipped from the War Office would be taken on board.

‘ To recapitulate : The two points on which we desire to have the favourable decision of the War Office are :

‘ 1. Assurance that at least one shipment of hay or other products would be taken from Canada every month for a period of six months or longer ;

‘ 2. Permission from the War Office to carry on these ships Canadian products and merchandise for commercial firms, they paying the full share of the cost of the steamer in proportion to the space occupied.

‘ I am sure you will not count it any trouble to give your valued co-operation in this matter.’



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Intimation was received from the Imperial War Office through the High Commissioner for Canada granting the assurance and permission which had been applied for. In accordance with that arrangement, general cargo was carried on five steamers. That general cargo included the following articles of Canadian production :

Axes, axles, barley, baths, bicycles and parts, billiard tables and frames, boots, calcined plaster, canned apples, canned corn, canned goods, canned tomatoes, canned lobsters, chairs, chair stock, chair stuff, cheese (Imperial), codfish, cook stoves, cushions (for roadcars), desks, doors, fish, flour, furniture, furniture stock, harness, harness racks, iron roofing, lumber, match blocks, mats, metal ceiling, metal sheeting, paint, paper fillers, peas (green), peas (split), pianos, radiators and castings, roadcars, saddlery, sash, doors and frames, sash lumber, shoes, stoves, boilers, pipes, castings and pots, tomato catsup, and wood mantles.

#### OFFICERS AT PORTS.

Several officers, in the capacity of inspectors, were appointed to observe and report upon the condition in which Canadian food products were loaded on the steamships at Montreal. During the season of navigation they reported that there had been 250 sailings of steamers carrying perishable products of the following lines : Allan Line, Thomson Line, Elder-Dempster Line, Donaldson Line, the Manchester Liners, the Dominion Line and the Leyland-Ellerman Line.

Officers of the Department have been stationed also at Manchester, Liverpool, Bristol, London and Glasgow in connection with the extension and improvement of trade in Canadian farm products. They have been instructed to observe and examine carefully the manner in which the products are handled in the unloading of the steamships, for the purpose of enabling the Department to take such steps as may be necessary to prevent the damage, particularly to cheese and fruit, which has been complained of by shippers and receivers from want of effective cool ventilation on steamships. The want of care in unloading, in handling on the docks, and in carting to the railways and warehouses, has in the past broken and injured a large percentage of the packages. Representations by these officers of the Department have been communicated to the shippers in Canada and also to the steamship agents. These have contributed to the means which have brought about some improvement during the season.

#### VARIOUS FOOD PRODUCTS.

Inquiries and examination of Canadian cheese in several of our commercial centres in the United Kingdom had revealed the fact that much of it had been landed in the United Kingdom in a heated condition that was telling against it in the markets. Consumers were less and less willing to purchase anything except cheese of mild flavour and rich body.

An investigation was carried on at cheese factories in Canada in 1899, as to the effect on the quality of cheese of curing them during the summer months in a controlled cool temperature continuously under 65 degrees Fahr. That was continued at one factory in 1900. The information derived from these investigations and from other inquiries made it evident that it was desirable to take further steps to bring about an improvement in the methods of curing cheese in Canada. In consequence it was



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decided to establish and to maintain for a period of years, four illustration curing rooms for the curing of cheese at a controlled cool temperature. The results are presented more fully under the report of the Dairy Division. So far they indicate that a great improvement in quality in every respect has been obtained from curing cheese at a temperature continuously under 58 degrees Fahr.

There has been a great development of the Canadian butter trade in the last few years. The number of packages of butter carried in cold storage from the port of Montreal increased from 227,863 in 1900, to 410,893 in 1901, and to 525,735 in 1902. Canadian butter has won a higher place relatively in the markets of the United Kingdom than it occupied before. The special inquiries by cold storage inspectors reveal the need for more careful maintenance of low temperatures at creameries before the butter is shipped, in order that it may be delivered at the point of export without any injury to its quality from heat.

Reports were received that a few lots of Canadian butter had been received in the United Kingdom somewhat spotted with mould on the butter paper and between the butter and the boxes. That occurred on saltless butter. A circular of information was issued to butter-makers informing them of means whereby they could entirely prevent the growth of mould on the butter papers and packages. A weak solution of formalin is effective for the destruction of spores of mould. A good course for the butter maker to follow is to prepare a strong brine of salt, adding one ounce of formalin to one gallon of brine. The butter paper should be soaked in the solution. The inside of all butter packages should also be rinsed with it. The butter paper, while still wet with the brine containing formalin, should be placed inside the butter box, and the butter immediately packed in it. The brine containing the formalin will destroy all spores of mould on the butter paper and on the inside of the box. A brine can be used for a long period if it be boiled once a week. As the formalin evaporates during the boiling process, it will be necessary to add to every gallon of brine, after it has been boiled and cooled, one ounce of formalin.

Canadian brands of bacon, hams and pork are now among the best known in the United Kingdom, and their superior quality is being more generally recognized. On that basis there is a steadily growing demand for them.

It was learned from dealers in eggs that Canadian eggs were growing ~~in~~ favour although the production of eggs in Canada during the year is reported as being somewhat less than formerly.

The Canadian package holding thirty dozens of eggs, with a separate cardboard compartment for each egg is preferred to all others. It has been reported that owing to the excellent reputation won by Canadian eggs, English dealers have in some instances been repacking continental eggs in cases similar to the Canadian egg case. Although these eggs have not been labelled or sold specifically as Canadian eggs, they have been sold as eggs in Canadian cases. While this practice is a compliment to the quality and reputation of Canadian eggs, it is also an injury, as some dealers may conclude that these continental eggs in Canadian cases, although not marked Canadian, are Canadian eggs, or that Canadian eggs are similar to them in size, quality and condition.

When eggs were carried in cold storage on the steamships, the surface was so cold that moisture from the humid and warm air of the United Kingdom was deposited on



the outside of each egg. That brought about a ‘mussy’ condition and prevented the egg from keeping well. Consequently the importers prefer to have the eggs delivered in a cold condition to the steamship, and then carried in cool, ventilated chambers across the ocean. That leaves them with bright, dry shells when the cases are opened.

COLD STORAGE DIVISION.

Cold storage is intended to preserve commodities and thus avoid direct loss ; it is useful in extending the period during which they can be marketed ; and it thus gives the owners a wider chance to choose their own time for selling. The best service is for the preservation of commodities on their way to the consumers, and the less time they are on the way, as a rule, the better will be the results.

In the planning and carrying out of a system of cold storage for Canada, various interests had to be taken account of, viz., the producers, the collecting buyers, the carriers or transportation companies, the distributing merchants and the consumers. The cold storage system has helped to prevent losses and deterioration of quality, it has given handlers a chance for more profit and left more wealth in the country. The arrangements were made mainly for cold storage for food products intended for export. Advantages have been provided incidentally for products for home consumption. With what is practically a chain of cold storage available, the superior quality of Canadian products will be further recognized by importing merchants and consumers in the countries to which they go.

COLD STORAGE ON STEAMSHIPS.

The contracts entered into with agents of steamship companies to provide a regular cold storage service for the carriage of butter and other perishable products from Montreal to points in Great Britain, in chambers cooled and kept cool by mechanical refrigerating machinery of the best and most modern sort, terminated at the close of navigation from Montreal in 1901.

From the port of Montreal, in the season of 1902 there were sailings of 37 steamers with cold storage, and most of these made several voyages each. The total capacity of those steamers per voyage to the various ports was as follows :—

	Cubic feet.
Bristol.....	127,854
London.....	166,286
Glasgow.....	90,120
Liverpool.....	168,652
Manchester.....	20,000
	<hr/> 572,912

There were also sailings of two steamers to South Africa with cold storage capacity of 67,500 cubic feet.

During the season, 148 self-registering thermometers, called thermographs, were placed on the steamers of the different lines, from time to time, for the purpose of re-



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ording the temperatures at which perishable products were carried. Comparatively small quantities of butter, some 1,593 packages, were carried in ordinary storage. Small quantities of cheese, bacon, lard and tender fruits were carried in cold storage during the season.

The following statement gives the number of packages of butter carried in cold storage, from the port of Montreal, during the seasons of navigation since 1898 :—

	Packages.
1898.....	209,172
1899.....	429,734
1900.....	227,863
1901.....	410,893
1902.....	525,735

On the whole the temperatures in the cold storage chambers for butter were not kept as low in 1902 as in 1901. The Department has advised that the temperature for butter should be maintained under 30 degrees Fahr., and as near 20 degrees Fahr., as practicable.

The following table shows the records for the highest and the lowest on the lines named :

TEMPERATURES as recorded in cold storage chambers for butter.

Lines.	Highest average of any voyage.	Lowest average of any voyage.
Allan.....	56° Fahr.	23° Fahr.
Thomson.....	30 " "	22 " "
Elder-Dempster.....	43 " "	23° " "
Donaldson.....	38 " "	22° " "
Manchester Liners.....	33 " "	25 " "

CIRCULATION OF COOLED AIR ON STEAMSHIPS.

The Department, while recognizing that improvements had been made in the handling of cheese and apples for export, was of opinion that still further improvements were necessary. It has appeared desirable to have cheese and apples carried in compartments in steamships through which a current of cooled air could be caused to pass. That would leave them with an attractive appearance on the surface and prevent any material deterioration in the quality of those products while on board the steamships.

Two plans were feasible and both have been applied to some extent. In reasonably cool weather it is sufficient to have forced circulation of the ordinary atmosphere. That can be effected by exhaust fans for the heated air being used in conjunction with a series of ventilators leading the cool air from the outside to the bottom of each compartment where cheese or apples are stowed.

Mainly in response to representations made by the Department in previous years, a large number of steamers in the Atlantic trade have been fitted with fans for the forced circulation of air through the holds and tween-decks.



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To effect the cooling in hot weather soon after the cargo has been put aboard, another method was recommended by the Commissioner for the cooling and circulating of air on steamships, particularly for the carriage of cheese, apples and other perishable products. Mechanical refrigerators were to be used for the cooling of air to be afterwards circulated through parts of the steamship by means of fans. Such parts of the steamship were to be insulated to some extent. Thus in the warmest weather, the holds and the tween-decks where cheese and apples were carried could be cooled to a temperature under 60 degrees before the steamer was more than 24 hours on her way down the St. Lawrence or out from any port. An arrangement was entered into with the owners or agents of the Allan Line, Thomson Line, Donaldson Line and Elder-Dempster Line to fit up one or more steamships of their lines. Under that arrangement ten steamships have been fitted up and have carried products.

Reports received from merchants in the United Kingdom who handled cargoes ex these steamships speak most favourably of the condition in which they were delivered and advocate an extension of similar accommodation.

#### COLD STORAGE ON RAILWAYS.

Arrangements were continued for the running to Montreal of refrigerator cars fully iced from nineteen starting points on the Canadian Pacific Railway; from fifteen starting points on the Grand Trunk Railway; from two starting points on the Quebec Central Railway; from two starting points on the Intercolonial Railway; from six starting points on the Canada Atlantic Railway; from three starting points on the Quebec Southern Railway; and from one starting point on the Quebec and Lake St. John Railway. Six of these ran once a fortnight, the other forty-two ran weekly.

The railway companies provided the refrigerator cars; and every car was iced to receive butter and other products requiring cold storage, at stations between the starting point and destination. Shippers who made use of these refrigerator cars were charged the regular 'less than carload rates', and no extra charge was made to them for the cold storage services.

#### CARS FOR CHEESE.

To provide further means for protecting cheese from being heated, agreements were entered into with the Canadian Pacific and Grand Trunk railways to build a number of ventilated cars of special construction.

Further arrangements were made with the various railway companies to provide a comparatively large number of refrigerator cars well supplied with ice, to be loaded weekly at various points whence cheese was to be moved to Montreal. The Department undertook to pay the railway companies a sum towards the cost of icing these cars, up to one hundred cars per week during two months.

The following extracts from letters written by representative firms largely engaged in the trade show that the service was appreciated:

From Mr. P. W. McLagan, President of the Montreal Produce Merchants' Association:—'This service has been undoubtedly a step in the right direction. In the cases where the supply of ice was adequate to keep the cars properly cool, the goods



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arrived in a very much improved condition. On the whole, the improvement is one in the right direction, and I sincerely hope that it will be made universal.'

From Messrs. A. A. Ayer & Co. : 'We consider the refrigerator car service for the carriage of cheese during the hot weather of this season to have been a decided benefit to the condition and keeping qualities of the cheese.'

From Messrs. Hodgson Brothers :—'We have been more than pleased with the special iced refrigerator car service supplied for cheese this season. We have compared the condition of cheese as it arrived in our warehouses from these iced cars with cheese that have come in ordinary cars, and the difference has been most marked. We sincerely hope your Department will see that the trade is supplied with more of these cars for next season. The difficulty has been that the supply this season has been so limited that it has been hard work to get as many cars as we would like, and I think your Department might treble the number next year with safety. If we are to hold our own with the competition from the other colonies it is of the utmost importance that the trade should be given equal facilities with other colonies as regards shipping.'

From Mr. A. W. Grant :—'There is not the slightest doubt that the iced car is the proper way to carry cheese, as they are altogether different to those which come in ordinary cars.'

From Mr. James Alexander :—'There is no question that the refrigerator car service for cheese this year was of great benefit.'

## COLD STORAGE WAREHOUSES.

Cold storage warehouses of sufficient capacity for the trade are provided in most of the cities as private business concerns. For the protection of perishable products intended for export and for the extension of business, it is desirable to have cold storage buildings at other seaboard points. As the volume of trade at first would not likely be sufficient to induce business men to put up such buildings for the accommodation of products intended for export, a grant was offered to those who would provide cold storage buildings at seaports. The grants were to be in the nature of guarantees that the earnings from the cold storage business at these points would yield at least five per cent on the cost of the building and plant.

The rates to be charged were to be satisfactory to the Department of Agriculture, and the grants from the government were not to be called upon, except to make up any deficiency between the net earnings and the sum of five per cent on the cost as mentioned. Advantage was taken of this offer at Quebec only.

An agreement was made with Messrs. B. & M. Rattenbury, the owners of a cold storage building at Charlottetown, Prince Edward Island, to provide cold storage there for the use of the public at reasonable rates.

## COLD STORAGE AT CREAMERIES.

To encourage the owners of creameries to provide cold storage accommodation at them to protect the butter in cold storage from the day after it is made, I caused it to be announced that the Government would, subject to ratification by Parliament, grant a bonus of fifty dollars (\$50) per creamery for every creamery at which the owner would



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provide and keep in use a refrigerator room according to the plans and regulations, during the season of 1897 ; and further bonuses of twenty-five dollars (\$25) per creamery for 1898, and of twenty-five dollars (\$25) per creamery for 1899, if and when the refrigerator room was provided and kept in use according to the plans and regulations during these years.

Plans showing the style of construction to be adapted for the insulation of old cold storage rooms and the methods of constructing new cold storage buildings and ice houses were furnished on application.

When the bonus was made available for those years, a great many owners of creameries did not appear to understand the benefits which would result to themselves from providing cold storage ; and some did not learn of the offer of the government bonus in 1897 in time to construct the cold storage for use during that summer. To encourage the owners of creameries to provide the cold storage which is so necessary, I intimated that the Government would extend the provisions of the bonus offered in the circular published October 26, 1896.

To the owners or lessees of creameries who did not before obtain the bonus of fifty dollars (\$50), the Government would grant a bonus of fifty dollars (\$50) per creamery, if and when its owner provides and keeps in use a refrigerator room according to the plans and regulations during the season of 1903, and the further bonuses of twenty-five dollars (\$25) each for the seasons of 1904 and 1905, if and when the refrigerator room has been kept in use according to the regulations, during these two seasons.

Thus the owner of a creamery who provides the necessary refrigerator room and keeps it in use according to the regulations during the three years ending 1903 or 1904 or 1905, as the case may be, may receive altogether a bonus of one hundred dollars per creamery.

The owners of over 600 creameries have provided cold storage in accordance with the regulations.

#### COLD STORAGE INSPECTORS.

Many of the creameries which had provided cold storage rooms were visited by an inspector on behalf of the Department. In the large majority of cases, the cold storage rooms were not being kept as cold as is necessary for the preservation of butter for even a few days. That state of affairs prevents the dairymen from deriving full benefit from the refrigerator car service, and from the cold storage on steamships. Earnest representations have been made to butter-makers and creamery managers, urging them to maintain a temperature continuously under 40° Fahr. A cold storage inspector in Montreal who looked after the arrivals of the refrigerator cars, subsidized by the Department, reported frequently that creamery butter was received at Montreal showing a higher temperature than that of the car in which it was carried. Some shippers persist in delivering their butter to the refrigerator cars and to the steamships, in a relatively warm condition. The cold storage accommodation of the carrying companies is intended to keep cool, but not to make cold, the products carried by them. The putting of warm products from any shipper into a refrigerator car, may cause injury to the other contents. The same is true to a less extent in the case of cold storage compartments on steamships.

A travelling inspector was employed to advise with railway agents and shippers regarding means for securing the greatest benefit from the cold storage system. Occas-



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ionally he found lots of butter which had been standing on a platform in the sun for several hours. In some instances doors of refrigerator cars were left open unnecessarily. He found shippers and railway agents ready to do what they could to prevent damage to the quality of the goods, when their attention was directed to those matters. Want of knowledge, want of care, want of thoroughness, absence of a sense of responsibility, can hardly be remedied altogether by a cold storage system.

The cold storage chambers on the steamships were examined regularly. It would appear to be in the interests of the export butter trade, if the steamship agents should decline to receive into cold storage on the steamships, any butter at a temperature higher than 40° Fahr. Neglect to cool down the cold storage chambers before the cargo was put in was noticed in many cases. One steamship line was a chief delinquent in that respect.

The Commissioner recommends that the facts in regard to those matters be posted in the Board of Trade room at the port next season.

## LIVE STOCK DIVISION.

When it is remembered that four-fifths of the products of Canadian fields, not including pastures, are consumed by live stock, it will be seen that it is important that the animals fed should be of the best quality. During the past year the efforts of the Live Stock Commissioner have been directed chiefly towards four objects, viz., the development of interprovincial trade in live stock, the extension of the Farmers' Institute system, the improvement of the work of agricultural societies, and the publication of press articles on live stock and kindred subjects.

## THE DEVELOPMENT OF INTERPROVINCIAL TRADE.

The reduced freight rates on pure bred stock, which were conceded by the railway companies, have greatly assisted in developing interprovincial trade.

The system of provincial auction sales of pure bred stock, established two years ago, is working out well. Four such cattle sales have been held in Ontario, at which 233 head of shorthorns were sold for an average of over \$100 each. The majority of these animals were young bulls and heifers. That average has been considered remunerative to the small breeders, for whose benefit these sales are largely intended. This year's sale at Calgary showed an average of over \$95 per head for 220 animals, which is considered satisfactory for ranch-bred cattle. With the assistance of this Department a territorial sheep breeders' association has been formed, and a large and successful sale of pure bred rams held at Medicine Hat, N.W.T. As there are few breeders of pure bred sheep in the North-west territories, the rams were principally imported from Ontario. In connection with the cattle sale at Calgary (started last year) a stallion and cattle show has been inaugurated. Live stock conventions have been held, at which the educational features have been developed by expert live stock lecturers furnished by this Department. The Live Stock Commissioner has given the Department of Agriculture of the North-west Territories assistance in selecting a shipment of 250 pure bred pigs in Ontario which were sold by auction in the Territories, with a view to improving the class



of swine raised there. Similar assistance was given the Prince Edward Island government in purchasing a car load of pure bred stock for sale by auction in that province.

The trade in stocker cattle between the eastern provinces and British Columbia and the North-west Territories, which the Live Stock Commissioner assisted in starting last year, has been developing satisfactorily. As a complement of this trade efforts have been made, with fair success, to find a market in the east for the range-bred horses of British Columbia and the North-west. One car-load of draft horses from British Columbia was sold by auction in Toronto, in September last, at fair prices.

The Live Stock Commissioner this year has given special attention to inducing the farmers of the Maritime provinces to appreciate the value of improved live stock. The Maritime Stock Breeders' Association has been greatly strengthened and brought into closer touch with this Department. It has been incorporated under Dominion charter and is doing a great deal of educational work. A maritime winter fair of a strictly educational nature has been established at Amherst, N.S., which town, with the county of Cumberland, is providing permanent accommodation for the show at a cost of about \$13,000.

#### EXTENSION OF THE FARMERS' INSTITUTE SYSTEM.

Further progress has taken place in the development of farmers' institutes in the various provinces. Early in the present year arrangements were made with the Quebec Department of Agriculture for systematic work covering the larger part of that province. Eight speakers were furnished by this Department and meetings were held at 48 places at which over ten thousand people were in attendance.

In Nova Scotia no arrangement was made with the local authorities for institute work until June of the present year, when a speaker was sent for a month's campaign in that province. Two speakers were also sent to Nova Scotia during October for a series of thirty meetings, devoted especially to fruit and poultry. The meetings have been well attended and the speakers have given satisfaction.

In Prince Edward Island forty-four meetings, during January and February last, were attended by two speakers furnished by this Department, who spoke to audiences totalling over four thousand farmers. Three speakers were furnished for a month's work in July. Several new institutes have been formed as a result and a good deal of enthusiasm created.

During January of this year, three speakers were sent to a series of upwards of thirty meetings in New Brunswick, at which there was an attendance of about two thousand people. Four additional speakers were furnished for 63 meetings in the month of October.

Three speakers were supplied last spring for a series of meetings in the North-west Territories. The Department of Agriculture at Regina has expressed great satisfaction with the work accomplished. These three workers also conducted a series of meetings in British Columbia with the assistance of local speakers. The attendance was large at nearly all the meetings, and the people showed themselves eager for information. Five speakers sent by the Department are now in British Columbia on a five weeks' campaign covering all the agricultural districts.



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In connection with this work the Live Stock Commissioner has assisted in providing a list of speakers for the annual conventions of the Nova Scotia Farmers' Association, the New Brunswick Farmers' and Dairymen's Association, and other farmers and dairymen's associations in Quebec.

## IMPROVEMENT OF AGRICULTURAL SOCIETIES.

There are throughout Canada a large number of agricultural societies and farmers' clubs, the majority of which have done no work outside of holding an annual show. These associations receive from various sources nearly \$1,000,000 per year. As one means toward improvement, an effort was made last year to inaugurate a better system of conducting county and townships fairs. A number of fairs were arranged in a circuit, and expert judges furnished for the live stock classes. These expert judges explained the reasons for their decisions in the ring and gave addresses on the best types of horses, cattle, sheep and swine. This plan proved so eminently satisfactory at the county fairs in the Ottawa district, in the North-west Territories and in British Columbia, that a great extension of the movement has taken place; and this year judges have been sent by the Department to nearly all parts of the Dominion. The Ontario agricultural societies have been placed under the control of a superintendent, who arranged some sixty fairs in convenient circuits, sent expert judges to each of these and assisted in drafting an up-to-date prize list.

The awarding of prizes at a fair is a comparatively unimportant matter as compared with other considerations. What is really desirable is that the fairs should be the means of disseminating information and of fixing correct ideals in the minds of those who are producing food stuffs.

This year the Live Stock Commissioner assisted in arranging and conducting what have been designated by the press 'model fairs' at Whitby and Richmond, Ont. The directors of these fairs made a thorough revision of their prize lists, and added a number of new and valuable features, with the idea, not only of improving their own exhibitions, but of inducing other county and township societies to follow their example. In the horse classes no racing was permitted, but exhibitions of riding and jumping were given. Addresses were given by experts on the requirements of the markets. Prizes were given for the best pen of fat cattle, and the best pen of bacon hogs, suitable for the export trade. Desirable and undesirable types of fowls were shown, with lectures on the fattening of chickens for the English markets, and exhibitions of killing, plucking and packing for export. Another novel feature was the operation of a model kitchen and dining room, with exhibitions of cooking simple dishes, and addresses on domestic economy. Dairy instructors were also present to give practical addresses in regard to the different phases of that branch of farming. Practical demonstrations of the proper packing of fruit for export were given by the Dominion fruit inspectors. Illustration plots showing the best varieties of grasses, clovers, millets, sorghums, corn, fodder and pasture crops, turnips, mangels and sugar beets, were planted on the grounds at Whitby and formed an interesting and instructive exhibit. Good clean amateur sport was also encouraged by offering prizes for the championship of each school section in the county in all-round athletics.

The desirability of interesting the children in the agricultural fair system has not been overlooked. With this in view prizes were offered at several fairs to the teachers



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and pupils of a public school section making the best exhibit of (1) cut flowers grown in the school grounds ; (2) grain in the straw ; (3) clover and grasses ; (4) roots, fruits and vegetables ; (5) wild flowers and leaves of trees ; (6) weeds and weed seeds ; (7) beneficial and injurious insects ; (8) native woods. This plan has proved effective in inducing the children to begin the fascinating study of Nature, directed towards the elements of general agriculture, economic botany and entomology, &c. Already parents are declaring that their children know more about the wonders of nature than they themselves have learned in a life time.

#### PRESS ARTICLES.

Carefully prepared, practical articles on live stock and kindred subjects have been sent weekly to over eight hundred newspapers throughout Canada, a large proportion of which have published them regularly. It is believed that more can be done by sending good articles regularly to the small country papers than in almost any other way, for by this means information is placed before many country people who can not otherwise be reached.

#### DAIRY DIVISION.

##### COOL CHEESE-CURING ROOMS.

Investigations carried on by officers of my Department during several years have shown that the temperature at which cheese are cured in the ordinary cheese curing room is much too high to secure the best results, and that a very great improvement in the flavour and texture of the cheese is effected when the temperature of the curing room is so controlled that it does not go higher than 60 degrees Fahr. It has also been found that the saving of shrinkage in weight during the curing of the cheese at the lower temperature amounts to over one per cent on the average.

In order to demonstrate and illustrate the advantages of the cool curing of cheese in such a manner as to bring them prominently before the notice of a large number of those interested in the industry, it was decided at the beginning of the season of 1902 to establish four central cool cheese-curing rooms, to which the cheese from surrounding factories could be brought as soon as they were made, and there cured at proper temperatures. These central curing rooms are located at Woodstock and Brockville in Ontario, and Cowansville and St. Hyacinthe in Quebec. During the months of July, August and September, 26,519 boxes of cheese were received from 37 cheese factories.

A number of cheese from all the factories were selected every week, and these were cured at the temperature of an ordinary cheese-curing room. They were afterwards compared by experts with other cheese (of the same day's make and from the same vat) that had been cured in the cool rooms ; and notwithstanding the fact that the past summer was remarkable for the absence of extreme heat, there was, a very marked difference in quality in favour of the cool cured cheese in every case. Some exporters, who examined the cheese, placed the difference in value at fully one cent per pound.

Two of these curing rooms, those at Woodstock and Cowansville, are equipped with mechanical refrigerating machines, while the other two are cooled by ice, stored in a



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separate chamber at one end of the building. The latter plan has proved to be the cheapest and simplest method of controlling the temperature.

A description of these buildings, with full details of operation and the results obtained, will be made the subject of a special bulletin.

The operation of these cool cheese-curing rooms has excited a great deal of interest in the trade, and the Department has received many inquiries for information regarding the improvements of factory buildings and the kind of management, which are necessary to effect the cool curing of cheese in their own establishments.

## OFFICIAL REFEREE FOR BUTTER AND CHEESE.

An officer of the Department was again stationed at the port of Montreal to act as official referee for butter and cheese. It was his duty to examine, upon request of either buyer or seller and with the consent of both parties, any lot of cheese or butter over which there was a difference of opinion or dispute as to quality.

He was called upon to examine, during the season, 429 lots of cheese and 147 lots of butter, after they had been declared by the buyers as under 'finest'. Of this number 24 lots of cheese and 9 lots of butter were pronounced by the referee to be 'finest' quality, and his decision was final in all cases.

A report on the quality of each lot examined is sent to a representative of the factory and a copy is given to the buyer. The referee, who is an experienced cheese and butter maker, is often able to point out to the makers of the butter or cheese the actual cause of defects observed, and how such defects may be remedied.

The officer who fills the position of official referee also acts as grader or inspector of butter and cheese intended for shipment to South Africa. A certificate, showing the grade of quality as determined by the inspector, is given to the exporter for each lot of butter or cheese examined.

Inspection is optional on the part of the exporter, but South African receivers usually demand it.

## THE NORTH-WEST TERRITORIES CREAMERIES.

The Department of Agriculture again operated sixteen creameries in the North-west Territories.

The extraordinary rainfall during the early part of the season and the harvesting of the heavy grain crop were two causes that operated against the support of the creameries during 1902. The output of the Alberta creameries, however, again shows an increase over previous years. Those in Assiniboia have, on the whole, made less butter than they did in 1901.

Three of the creameries formerly managed were closed by the Department during 1902, owing to the lack of sufficient patronage. The failure of the farmers in these districts to support the creameries does not appear to arise from any lack of confidence in the dairy business, but simply because they are now in a position to go into stock raising and grain growing, and because they prefer the latter means of livelihood. The changes of the past few years have altered the aspect of farming operations in many parts of the North-west.



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Five carloads of the butter from the government creameries have been exported to Great Britain, one carload was sold for export to Queensland, Australia, and shipments were also made to China, Japan and to the Yukon. The remainder was disposed of in local and British Columbia markets.

## NOVA SCOTIA CREAMERIES.

The Department still operates the dairy station at Nappan, and one creamery at Scotsburn, in Pictou county, and another at Mabou, in Inverness.

These creameries were built and equipped by the farmers themselves, and the usual charge of  $3\frac{1}{2}$  cents a pound is made for manufacturing and marketing the butter.

A considerable portion of the butter goes to the West Indian markets, while the remainder finds a ready sale in the local markets of the maritime provinces.

## GENERAL DAIRY SERVICE.

The Assistant Dairy Commissioner, whose labours are confined chiefly to the province of Quebec, has attended a large number of public meetings, and given lectures on various dairy topics. He also assists in carrying on the syndicate system of dairying instruction as organized in the province of Quebec, and gives a series of lectures to the students of each course at the provincial dairy school at St. Hyacinthe, Que.

The Dairy Superintendent for the Maritime Provinces took charge of a class of instruction in cheese making at Charlottetown, P.E.I., arranged for by the Provincial Dairymen's Association in March last, and an instructor was provided for the dairy school at Sussex, N.B., during its last term.

The office of Dairy Superintendent for the Maritime Provinces will not be continued after this year. All the provincial governments now employ experts of their own.

The Chief of the Dairy Division and his assistants have attended and addressed a large number of meetings and conventions of dairymen in the several provinces.

A number of bulletins and leaflets have been distributed during the year, giving information upon the production and handling of milk, the manufacture of cheese, improvement in cheese-curing rooms, &c. A large correspondence is conducted with the cheese and butter makers and others interested in dairy work, whereby much information of a more or less technical nature is disseminated.

## BRANDING AND REGISTRATION BILL.

Under the Act passed 'to provide for the Registration of Cheese Factories and Creameries, and the Branding of Dairy Products, and to prohibit misrepresentation as to the dates of Manufacture of such Products,' certificates of registration have been issued to 1,269 cheese factories and creameries, and applications are being received occasionally.

## EXPORTS OF BUTTER AND CHEESE.

The magnitude and growth of the export trade of Canada in dairy products is shown by the following tables (years ended June 30) :—



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DOMINION OF CANADA Exports of Dairy Products Home Production.  
BUTTER.

Year.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Ger- many.	Other Foreign Coun- tries.	B. N. A. Provinces.	British Indies.
	Lbs.	£	£	£	£	£	£	£	£
1869 .	10,649,733	1,698,042	534,707	1,015,702	.....	1,496	14,870	95,777	26,986
1880 .....	18,535,362	3,058,069	2,756,064	111,158	.....	..	24,710	163,290	2,647
1890 .....	1,951,585	340,131	184,105	5,059	.....	.....	29,342	119,989	1,636
1891 .....	3,768,101	602,175	440,060	10,054	.....	20,447	24,021	101,649	5,944
1892 ....	5,736,696	1,056,058	877,455	6,038	..	5,160	27,207	133,770	6,428
1893 .....	7,036,013	1,296,814	1,118,614	7,539	.....	1,175	35,042	127,412	7,032
1894 .....	5,534,621	1,095,588	936,422	6,048	1,125	.....	25,560	109,263	14,170
1895 ....	3,650,258	697,476	536,797	5,365	.....	267	35,028	108,439	11,580
1896 ....	5,889,241	1,052,089	893,053	2,729	..	9,370	34,299	105,472	7,166
1897 .....	11,453,351	2,089,173	1,912,389	6,233	.....	8,513	33,490	115,754	12,794
1898 ....	11,253,787	2,046,686	1,915,550	3,738	..	17,574	31,619	51,045	27,160
1899 ....	20,139,195	3,700,873	3,526,007	3,984	..	12,384	41,810	74,813	41,875
1900 ....	25,259,737	5,122,156	4,947,000	5,044	..	7,210	43,176	66,069	53,657
1901 ....	16,335,528	3,295,663	3,142,353	5,839	.....	.....	39,675	44,986	62,810
1902 .....	27,855,978	5,660,541	5,459,300	41,149	.....	101	36,109	47,066	71,816

CHEESE.

1863 .....	6,141,570	620,543	548,574	68,784	..	..	891	1,594	340
1880 .....	40,368,678	3,893,366	3,772,769	114,507	..	.....	170	5,710	210
1890 .....	94,260,187	9,372,212	9,349,731	6,425	..	370	2,154	12,777	755
1891 .....	106,202,140	9,508,800	9,481,373	13,485	..	.....	1,954	9,104	3,884
1892 .....	118,270,052	11,652,412	11,593,690	39,558	2	.....	2,124	12,942	4,091
1893 .....	133,946,365	13,407,470	13,360,237	23,578	.....	.....	2,689	18,679	2,297
1894 .....	154,977,480	15,488,191	15,439,198	9,552	.....	173	3,036	21,948	14,284
1895 .....	146,004,650	14,253,002	14,220,505	5,058	..	16	5,463	9,785	12,175
1896 .....	164,689,123	13,956,571	13,924,672	10,359	299	..	4,861	7,509	8,871
1897 .....	164,220,699	14,676,239	14,645,850	4,486	94	24	5,365	11,954	8,457
1898 .....	196,703,323	17,572,763	17,522,681	14,604	.....	1,428	6,889	12,784	14,377
1899 .....	189,827,839	16,776,765	16,718,418	17,739	.....	.....	11,701	13,293	15,614
1900 .....	185,984,430	19,856,324	19,812,670	4,836	.....	.....	8,774	16,651	13,393
1901 .....	195,926,397	20,696,951	20,609,361	37,601	465	12	15,375	16,603	17,534
1902 .....	200,946,401	19,686,291	19,620,239	12,038	.....	1,179	14,133	20,100	18,602



IMPORTS OF GREAT BRITAIN.

The following table from the Board of Trade returns of Great Britain for 12 years (ended December 31), shows the total quantities and value of butter and cheese imported into Great Britain :—

BUTTER.			CHEESE.		
Year.	Quantity.	Value.	Year.	Quantity.	Value.
	*Cwt.	£ stg.		*Cwt.	£ stg.
1890. ....	2,027,718	10,598,848	1890.....	2,144,074	4,975,134
1891. ....	2,135,607	11,591,181	1891.....	2,041,317	4,815,369
1892.....	2,183,009	11,965,190	1892. ....	2,232,817	5,416,784
1893.....	2,327,474	12,753,593	1893.....	2,007,462	5,160,918
1894.. ....	2,574,835	13,456,699	1894.. ..	2,226,145	5,474,940
1895.....	2,825,662	14,245,230	1895.....	2,133,819	4,675,130
1896.....	3,037,718	15,344,364	1896.....	2,244,525	4,900,342
1897.....	3,217,802	15,916,917	1897.....	2,603,178	5,885,521
1898.....	3,209,153	15,961,783	1898....	2,339,452	4,970,805
1899.....	3,389,851	17,213,516	1899.....	2,384,069	5,503,004
1900.....	3,378,516	17,450,435	1900.....	2,705,878	6,837,883
1901. ....	3,702,890	19,297,396	1901.....	2,586,837	6,227,135

\* Cwt. : 112 lbs.

POULTRY.

FATTENING OF CHICKENS.

In 1898, I authorized the establishment of two chicken-fattening stations in Canada to illustrate the method of fattening chickens as followed in Great Britain. Since that time the trade in crate-fatted chickens has made substantial development each year.

Illustration shipments of fatted chickens from the fattening stations have each year gone forward with success to Great Britain; commercial firms throughout Canada have exported large shipments of chickens, some of them under the direction of this Department. Reports state that the chickens arrived in fine condition, pleased the trade well in every respect and were sold at good prices. After a careful consideration of the favourable impression which Canadian crate-fatted chickens have made in Great Britain, of the letters from large commission merchants making inquiries for thousands of cases of similar chickens this year, and of the relatively good prices realised, it appears that the exporting of fatted chickens to Great Britain can be profitably developed to an almost unlimited extent.



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The style of shipping case, which holds one layer of twelve fowls, used at the illustration stations, has been adopted by exporting firms. Practically all the Canadian chickens exported to Great Britain this year will be sent in uniform cases in which they present the best appearance for market.

This year, in order to learn what increased profits could be realized by farmers fattening their chickens and selling them in Canada, I authorized weekly shipments of fatted chickens to be forwarded to produce merchants in Goderich, Ont., Toronto, Ont., Montreal, Que., and Sydney, C.B. The result of these sales confirmed my expectations that the local demand for fatted chickens was an increasing one, and that the fattening of chickens by the farmers for local consumption could be extended with much profit.

In addition to four complete hatching, rearing and fattening stations, there are in operation this year twelve illustration chicken-fattening stations. At all of these stations chickens are fatted, killed, shaped and packed. These chickens are forwarded to Great Britain or sold in Canada.

## HATCHING STATIONS.

In 1901, I authorized the establishment of three complete illustration poultry stations for the artificial hatching, rearing and fattening of chickens. The eggs for these stations were purchased from farmers and hatched by incubators. The chickens were reared in brooders, and when about four months old were placed in the fattening crates. Two thousand chickens were reared at the stations and valuable information was secured regarding their hatching and the nature of the feed required for rapid growth.

This year I increased the number of complete stations to four. Two of these stations are in Ontario and one each in Quebec and New Brunswick. Last spring the eggs for hatching were again purchased from the farmers. Whilst the hatching results were satisfactory, the chickens were not of a uniform type or quality.

In order to improve the utility qualities of the Barred Plymouth Rock and White Wyandotte breeds of poultry, I authorized the construction of model poultry houses at the Homesville, Ont., Bowmanville, Ont., and Bondville, Que., illustration stations, and directed that 100 of the best pullets of these breeds be retained at each of the stations. Next spring the eggs for hatching will be secured from selected pullets that are housed and fed at our stations.

Among the farmers of the maritime provinces there was a demand for well-bred Barred Plymouth Rocks. The requests for chickens came through the men in charge of the chicken fattening stations and also from individual farmers. To encourage the production of the most profitable type of poultry, I authorized the shipment of 300 Plymouth Rock cockerels and pullets from the Bondville, Que., illustration station. The chickens were delivered to the farmers at 50 cents each. I learn that the chickens arrived in good condition and have given satisfaction.

The men in charge of the illustration stations were instructed to visit the agricultural fairs in the vicinity of their stations, and to impart practical information about every branch of the poultry work. This has proven of value.

A bulletin, 'Profitable Poultry Farming', dealing with the work of hatching, rearing, fattening and marketing and the care of poultry, has been published.



## FRUIT DIVISION.

The Fruit Marks Act of 1901 was amended by Parliament in 1902. A bulletin, containing the Act as amended, together with a copy of the Order in Council making regulations to secure the efficient enforcement and operation of the Act, and general instructions to inspectors, was distributed widely.

Inspectors for the enforcement of the Act were appointed to cover the main fruit growing districts throughout Canada, as well as the chief points from which fruit is exported or distributed for the home markets.

The encouragement given to those who ship choice fruit, by the Act preventing the sale of inferior grades under false designations, has already led to more business-like methods of grading, packing and marking fruit for home and outside markets.

Meetings with persons engaged in the fruit trade were held by the inspectors in March and April in a number of towns and cities, under the auspices of the retail grocers and fruit sellers' associations. Farmers' institutes were attended and meetings called in halls and orchards, wherever information could be given with most benefit. Orchard meetings have been helpful. Practical work of illustration and instruction has been carried on in pruning, grafting, and in the detection and destruction of insects and fungous pests. Demonstrations in spraying have been given at various points. At these meetings many questions are answered on general orchard practice; and the Fruit Marks Act is discussed and explained. Inspectors have attended the regular conventions of provincial fruit growers' associations of the provinces of Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island.

The Chief of the Fruit Division has been employed in the United Kingdom during the past season, making inquiries and observations into the fruit trade.

The inspectors visited as far as practicable orchards and shipping stations, making inspections and giving information. As far as possible with the number of inspectors available, the Fruit Marks Act was applied also to basket fruit, including strawberries, peaches, plums, &c. A good effect from this was noticeable in the larger towns and cities. About two thousand inspections have been made during the season, and prosecutions have been ordered in about twenty cases.

Noticeable improvements have been observed in the methods of packing and marking fruit intended for sale. Whereas formerly it was usual to find apple barrels faced with fruit greatly superior to the general contents of the package, it is now the exception rather than the rule to find false packing. In the great majority of cases the fruit has been found correctly marked.



## CROPS.

## RESULTS OF THE PAST SEASON.

Throughout the whole of Canada, from the Atlantic to the Pacific, nearly all agricultural crops have been highly satisfactory ; large yields have been realized and the whole country is sharing with the husbandman the benefits following the bountiful harvest he has gathered.

## ONTARIO.

From all parts of Ontario come reports of excellent crops. The yield of hay has been exceptionally good, and it has been well saved. Winter wheat has given the largest returns had in many years, much above the average of the past. The Hessian-fly, which caused considerably injury to the crop of 1901, has been seldom met with during the past year and the winter wheat crop has been almost free from insect injury and but slightly affected by rust.

Spring wheat has also yielded bountifully, the crop being well above the average. Barley, also, of which the acreage has been increased, has given unusually heavy returns.

Oats have given much the best crop on record. The grain yield has been from 20 to 25 per cent above the average of past years and the kernel plump and heavy. The straw, also, is unusually good and the crop has been well saved. The acreage devoted to this important crop is yearly increasing and in Ontario now exceeds the total area occupied by all other cereals.

The pea crop has been badly infested by the pea-weevil, which has in many districts considerably reduced the value of the product. Owing to the cool character of the weather throughout the summer, the crop of Indian corn has fallen somewhat short of its usual tonnage ; nevertheless, it has given in most districts a very fair return. The season has been favourable for the growth of field roots ; the crops have been unusually large and the weather propitious for gathering them.

In most districts there has also been a large yield of potatoes ; but in some localities this crop has suffered much from rot. Where properly cared for and the vines sprayed with Bordeaux mixture in accordance with instructions sent out from the Central Experimental Farm, this disease has made but little headway.

The absence of very hot weather, with favourable conditions of moisture, has resulted in rich pasturage ; and the dairy industry has flourished ; the output has been large and prices have been well maintained. All branches of the stock industry have prospered, good prices having proved a great stimulus to these divisions of farm work.

The apple crop is good and the fruit is very free from insect pests. Pears and peaches have been abundant and good. Plums, also, have grown well ; but in some districts much of the fruit has been destroyed by Plum Rot.

## QUEBEC.

In this province farmers are well satisfied with the results of the season. Hay has given an abundant return and the crop has been well saved. Oats, also, have



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yielded well and the grain is plump and heavy, while there is also a good weight of straw. The crops of spring wheat and barley have been unusually good. Corn has not matured as well as usual, owing to the cool weather, and the crop is below the average.

Pasturage has been good, a condition very encouraging to the dairy and stock interests. Field roots and potatoes in most localities have given satisfactory returns.

The apple crop has been good. Plums, also, and small fruits have yielded well.

#### THE MARITIME PROVINCES.

In the Eastern Provinces the season opened late and the weather was cool and wet, which delayed seeding beyond the customary time. Nevertheless, the conditions for grain-growing have been most favourable, and bountiful crops have been harvested. Oats, spring wheat and barley have all given unusually heavy returns and the grain is plump and of excellent quality.

Turnips and other field roots have produced abundant crops, the pastures have been excellent and the cattle are mostly in very good condition. The yield of hay has been fully up to the average and the crop well secured.

The yields of the different sorts of fruit have, on the whole, been good; but the heavy crops of apples which have been gathered for the past two years in the Annapolis valley, Nova Scotia, have been followed by a yield unusually light.

#### MANITOBA.

Manitoba has had another excellent year, the rainfall has been sufficient and the outcome of the harvest most gratifying. The average yield of wheat is expected to be somewhat higher than last year; the weather during harvesting has been fine, and a very large proportion of the grain which is being marketed is of the highest grade in quality.

Oats and barley have given heavy returns, and the crop of potatoes is above the average. Flax has given a good yield and since this is found to do well on newly broken land in most parts of the North-west country, greater attention is paid to this crop than formerly. The dairy and stock industries are also making satisfactory progress.

#### THE NORTH-WEST TERRITORIES.

In the territories there has been a great influx of settlers and the area of land under cultivation is rapidly increasing and the output becoming correspondingly greater. Good reports as to the weight of crop and the excellent character of the product are coming in from all quarters. The average returns per acre from wheat and other cereals are expected to equal those of 1901. The conditions of moisture have been very favourable, and the stock industry has prospered much and a large number of fine animals have been marketed. In those districts where mixed farming is carried on, dairying and the rearing of cattle, swine and poultry have been profitable and the output is increasing rapidly.

Under my instructions the Director of Experimental Farms visited the Canadian North-west during the harvest season and travelled over portions of Manitoba and the



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Territories. His reports on the results of the season are highly gratifying. He travelled over some of the more sparsely settled portions of the country and found new settlers coming in everywhere and the vacant lands being quickly taken up. He visited portions of southern Alberta in 1901 and revisited some of these in 1902. The localities seen were found to be rapidly filling up. In the Mormon settlements in particular the growth has been phenomenal. Last year, at the time of the Director's visit, a new town called Raymond was being laid out, and the only object which broke the monotony of the plains was a surveyor's tent. Not an acre of crop was in sight. Within a year a town has sprung up with a population of 600, all comfortably housed. Their crops cover an area of nearly 5,000 acres and grain of all sorts has given very satisfactory yields.

## BRITISH COLUMBIA.

In the coast climate of this province hay has proved an exceptionally heavy crop; oats also have given a large return, the quality of the material in both cases being excellent. Wheat and barley are not largely grown, but where they have been sown an abundant crop has been harvested. The yields of field roots and fodder crops have been very satisfactory. Dairying is on the increase, and in some districts much success has attended the growing of hops.

The crop of fruit on the coast has been somewhat under the average. Plums have yielded bountifully, but the plum rot has been very prevalent and destructive to the fruit. In the interior and drier districts fruit trees are giving abundant returns and the product is of fine quality. The crops of grain and of hops in the interior country have also been very satisfactory to the growers.

## EXPERIMENTAL FARMS BRANCH.

The experimental farms of the Dominion are rendering excellent service to the farmers of Canada. During the sixteen years which have elapsed since these useful aids to farming were established, the advancement made in all lines of agriculture has been most marked. The valuable and trustworthy information which has been given in the reports and bulletins issued from the farms has helped to lessen or remove the difficulties which stand in the way of successful agriculture, has stimulated increased production and given the farming community confidence in their work. The results of the many important and carefully conducted experiments which have been published each year have placed before the farmer a most valuable accumulation of facts for his guidance. In this way he has been made familiar with the results obtained from practical work in the fields, barns, dairy buildings, orchards and plantations to direct him towards the best methods with the happiest results. Canadian farmers are now well informed along most of the practical lines of farm work on which agricultural prosperity mainly rests.

## FACTORS BEARING ON AGRICULTURAL PROSPERITY.

Among the more important of these are:—The maintaining of the fertility of the soil, mainly by the proper care and use of barn-yard manure and the ploughing under of clover, the following of a judicious rotation of crops; the preparation of the



land after the best methods under the different climatic conditions prevailing in Canada; early sowing, the choosing of the best and most productive varieties and the selection of plump and well ripened seed. Demonstrations along all these lines are being given continually by the experimental farms. In addition to the benefits resulting from the example and teachings of the farms showing the most profitable course for the farmer to follow, he is further helped in his efforts to improve the quality and increase the quantity of his products by the annual distribution of the best sorts of grain, which many years of trial have shown to be especially productive.

There is probably no employment engaging man's attention which requires more skill and more general information than farming. Competition in agricultural products is keen throughout the civilized world, and the farmer needs to turn to practical account every advantage within his reach for the improvement of the quality of his products and the lessening of the cost of production, if he is to maintain and strengthen his position. The experimental farms are bureaus of information from which he can draw, and the large correspondence with farmers and the great demand for the publications issued from the farms, show how thoroughly the advantages offered are appreciated.

#### ASSISTANCE TO THE DAIRY AND STOCK INDUSTRIES.

The object lessons given in the raising of fodder crops and the converting of these into ensilage, to furnish succulent winter food for cattle, have been a great stimulus to the dairy industry, especially in reference to the manufacture of butter during the winter months. The way has been prepared for providing cheap food for the fattening of steers, thus adding to the profits of farming. The experiments which have been conducted in regard to the economical production of butter of the highest quality, the proper care of milk, and the best methods of treatment to secure the most complete separation of the butter-fat, have been helpful to those engaged in dairying. The experience gained by the many experiments made in the feeding of cattle, swine and sheep, and in the testing of those breeds best adapted to produce the highest quality of beef, pork and mutton, has proved a stimulus and a help to the stock industry. The business in eggs and dressed fowls for the table has also been advanced by the publication of results obtained from experiments conducted in the poultry branch.

#### ASSISTANCE RENDERED TO LEADING EXHIBITIONS.

Very excellent and comprehensive exhibits have been provided by the experimental farms for the exhibitions made during the past year at Wolverhampton and Cork. Collections of all the best varieties of grain grown in the country were shown in glass jars of different forms and sizes. Instructive displays were also made of all the leading sorts in the straw, some being put up in small bunches, properly labelled, and placed under glass, and others so arranged as to display to great advantage the fine long and bright straw so characteristic of the excellent grain grown in the Canadian North-west. A fine collection was brought together of the more important grasses grown in Canada, and an interesting display made of other agricultural products such as pease, beans, Indian corn, flax, millets, buckwheat, hops, &c. Handsome exhibits of honey were also made from the apiary of the Central Experimental Farm at Ottawa.

These were all artistically arranged in suitable trophies by Mr. W. H. Hay, accountant at the Central Experimental Farm, who has shown much skill in this branch



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of work. The excellent character of the products thus brought prominently into notice has been a surprise to visitors from all parts of Great Britain, and has done much to advertise the immense agricultural resources of Canada.

One feature which attracted the attention of farmers very much was a collection of samples of grain grown by settlers in different parts of the North-west Territories, with statements from the growers as to the number of acres grown and the yield per acre in each case. These were brought together by the Superintendent of the Experimental Farm at Indian Head, Assa., and were drawn from different parts of an area of country covering more than 180 miles in length. The samples of wheat varied in yield from 40 to 60 bushels per acre, and the oats from 80 to 110 bushels per acre. These large yields and fine samples were the subject of much comment by those interested in agriculture across the sea.

## CORONATION ARCH IN LONDON, ENGLAND.

The Dominion Experimental Farms also contributed material for the grand collection of Canadian agricultural products displayed on the coronation arch which was erected in London on the occasion of the crowning of His Majesty King Edward VII. This elegant structure, so well conceived and carried out, received much praise from the press in Great Britain, and was generally conceded to have been one of the most telling efforts ever made to bring Canada prominently before the British public as a great food producing country.

## DIVISION OF AGRICULTURE AND LIVE STOCK.

In the agricultural division the work carried on during the past year has been: (a) a study of methods of soil improvement, (b) experiments to determine the comparative economy of different crops as food producers, both forage or roughage, and concentrates or grain.

*The Soil.*—The work in soil improvement has been along the lines of cultivation and rotation. The system of shallow cultivation is followed for the most part, and has given excellent results. In comparison with shallow cultivation and a partial fallow or August ploughing, fairly deep ploughing late in the autumn is being tried. No conclusive data are as yet available, indicative of the comparative values of the above methods as soil improvers. A five year rotation is followed.

*Crops.*—The field crops common to Canada are grown, and a study is being made of their comparative economy as food producers.

In animal husbandry work is being done with dairy cattle, beef cattle, steers, sheep and swine, to determine the comparative economy of different foods as milk and flesh producers, and to determine the most economical rations or food mixtures to use.

*Dairy Cattle.*—In the case of dairy cattle an experiment to determine the comparative value of purely dairy cattle, Guernseys, as compared with dairy cattle of a slight tendency towards beef as Ayrshires; and beef cattle with milking qualities fairly well developed, that is, dual purpose cattle or dairy shorthorns. A record of the year's work with these herds may be found in the Report of the Experimental Farms for 1902.

In addition, a herd of Canadian cows is being introduced, and small grade herds of each of the above mentioned breeds are being built up and studied.



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*Steers.*—With steers, experiments to determine the most economical age at which to feed off, as well as experiments to ascertain the best methods of housing or stabling the cattle for feeding, are being conducted.

*Swine.*—In pork production, the work during the year has been a study of cross breeds of Large Blacks on Yorkshires, Tamworths, Berkshires : feeding pigs on pastures of different kinds, feeding different food stuffs, and feeding a light versus a heavy ration. In addition to pigs for feeding experiments, a great many pure-bred pigs are bred and sold for breeding purposes to all parts of Canada. The breeds kept are those most suitable for bacon production : Yorkshires, Tamworths, and Berkshires.

*Sheep.*—Leicesters and Shropshires are bred. The operations during the past year have not been very successful.

#### DIVISION OF HORTICULTURE.

The unusually severe frosts this year were unfavourable to many things connected with the Horticultural Department. Both large and small fruits suffered considerably. Vegetables were in some cases destroyed and ornamental trees and shrubs were badly hurt, at least temporarily. Notwithstanding the unfavourable spring, however, the fruit crop on the whole was good and many experiments which have been in progress with fruits and vegetables were continued successfully and new experiments begun.

*Fruit.*—The apple crop was good at the Farm this year, and the fruit was of fine quality. Much information was obtained regarding the large number of varieties under test and many kinds fruited this year which had not done so before. Descriptions are made of these and notes taken on the hard ness and productiveness of the trees.

A successful shipment of autumn apples was made to Glasgow in October. The fruit was sent without cold storage and arrived in almost perfect condition. The apples were packed in bushel boxes in layers with excelsior between.

Considerable attention is being paid to the production of seedling varieties of apples and plums, and to testing seedlings originated by fruit growers in different parts of Canada. The seedling orchard was much increased this year and the young trees are doing well.

For the past five seasons special attention has been given to the cultivation of strawberries. Many varieties have been tried and discarded, while those which succeeded best have been recommended. The crop this year was good and the test a very reliable one. Useful experiments are also being made with other small fruits and with pears, plums, cherries, and grapes. Owing to the cool season the grapes did not ripen well this year.

*Vegetables.*—Experiments with vegetables are made every year. Amongst the most important this year were those with potatoes, tomatoes, pease and corn. The potato crop was very good, the highest yields in the history of the Farm having been obtained this year. This was largely due to the prevention of blight and rot by the use of Bordeaux mixture, coupled with a good growing season. In a test made with eleven varieties of potatoes the yield was almost doubled by spraying with Bordeaux mixture.

Early tomatoes are the most profitable to the grower, and careful notes have been taken and reports made for the past five years on the earliest varieties of those under



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test. This information has proven most valuable to market gardeners, as new varieties are being continually introduced, some of which are earlier than the old sorts. The productiveness of the different varieties has also been determined with tomatoes, as well as with corn and pease.

*Forest Belts.*—The Forest Belts are becoming a more prominent feature of the Farm as the trees get larger. They extend along its northern and western boundaries. Most of the best varieties of timber trees are being grown, both in mixed plantations and in groups by themselves. The annual measurements were again taken this year of average trees of the different kinds. Tables are published in the Annual Reports giving the time of planting and measurements of the trees. These should prove useful as showing the possible height and diameter a tree may reach in a certain time.

*Arboretum and Botanic Garden.*—Though not as well known as the other branches of Experimental Farm work, the Arboretum and Botanic Garden is steadily improving in appearance, and the collection getting much larger. There, every tree, shrub, and herbaceous plant that is at all likely to survive the winter is tested and notes are taken on the hardiness and vigour shown. Many things which it was thought would not succeed at Ottawa are doing nicely. The trees, shrubs, and herbaceous plants are well labelled, making it easy to study the different species and varieties. Owing to the favourable season, the trees and shrubs made good growth this year.

## DIVISION OF ENTOMOLOGY AND BOTANY.

The work in this division has been energetically prosecuted in the same directions as in past years. The correspondence which increases steadily every year shows the appreciation by farmers and others of the work being done by the officers in practical entomology and botany. Critical studies of the life-histories of many injurious and beneficial insects have been carried on, and the latest developments in remedies for injurious insects have been investigated. Valuable additions have been made to the reference collections of plants and insects, and these collections are now a useful feature of the division. Frequent use is made of them by visitors, correspondents and students.

Continued attention has been given to the testing of useful grasses and many kinds have been grown from foreign countries which it was thought might be useful in Canada and also from seed of native species collected in all parts of the Dominion. There is a constant demand for information concerning fodder plants of all kinds, and it cannot be denied that this is a very important part of agriculture. Appreciating this I instructed the entomologist and botanist to prepare for some of the autumn agricultural exhibitions collections illustrating the most valuable agricultural grasses both in a living state at different stages of development and also in the cured condition of hay. Wherever these were exhibited they created a marked interest, as shown by the constant inquiries made concerning them. In conjunction with this exhibit was a similar educational collection of the best known and most injurious weeds of the farm. The losses from weeds every year in all parts of the Dominion are very great, but the different classes of weeds are few and the methods of dealing with them are comparatively simple when the nature of each is understood. At the exhibitions where these collections were shown an officer of the department was in attendance to give information to all inquirers concerning grasses and weeds, and in this way information was disseminated where it could be of most use.



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The services of the Entomologist and Botanist have been much used during the year in addressing meetings on the work of his division in different parts of the Dominion. In June last, at the invitation of the North-west Government, I was pleased to send him to conduct a series of meetings at which the chief subject discussed was 'Noxious Weeds,' and incidentally information was also given on injurious insects and the cultivation of grasses and fodder plants suitable for the district. The region visited was south-western Alberta, a tour being made through the prosperous Mormon settlements. All these meetings were well attended and great interest was shown. At the end of July similar work was done in New Brunswick, and in August in Prince Edward Island. These meetings were also successful and useful, as indicated from the appreciative letters I have received from the places visited.

Among the insects which have demanded special attention during 1902 mention may be made of the following :—

*The San José Scale.*—The policy of fumigating all nursery stock imported into Canada from countries where the San José Scale is known to exist has been strictly carried out, and I am glad to learn that up to the present time no single instance has been recorded where living scales have been found upon nursery stock which had been treated in the Dominion fumigating houses. The excellent work of the Provincial Government of Ontario, as carried out by their energetic inspector of San José Scale, Mr. Geo. E. Fisher, has resulted in a material increase in our knowledge of methods of controlling this most destructive insect. The treatment which has up to the present time given the best results, is to spray infested trees during the winter with the well known California wash of lime, sulphur and salt, and during the summer with the ordinary kerosene emulsion. We are now in the position to claim that a practical remedy has been found for the San José Scale, which will enable fruit growers who adopt the remedy and practice it consistently to grow good crops on infested trees year after year, and at the same time to rapidly reduce the degree of infestation on their trees.

*The Pea Weevil.*—An insect which is now causing an immense amount of loss in Canada, much of which can surely be prevented by simple and well known means is the Pea Weevil, usually called by farmers "the Pea Bug." The entomologist has done good work by stirring up a keen interest in this matter and if he can succeed in getting farmers to sow nothing but seed which has been fumigated with bi-sulphide of carbon, so that no living weevils are carried to the fields, and in getting pea growers to harvest early, thresh at once, and then treat their seed, there should be even in a single year an appreciable improvement in the condition of the pea seed trade of Canada. The loss from this insect in the Province of Ontario alone during the past ten years has amounted to about seven million dollars. From fear of the attacks of the pea weevil farmers are now giving up the cultivation of peas in many districts, and looking for substitute crops. The area sown with peas in Ontario was, in 1902, 70,000 acres less than in 1901. This is an unfortunate state of affairs. The pea crop is one of special value and no other crop quite takes its place. It is of special value in connection with the feeding of hogs and for export for the European market. The Grass-pea which has been strongly recommended as a substitute appears to be a rather uncertain cropper in some districts. The Entomologist believes that the relinquishing of the cultivation of a valuable crop because it is attacked by enemies is a wrong principle and is therefore devoting his best energies to induce farmers to adopt the simple remedies which he is advising and which are known to be effective.



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The Entomologist reports that on the whole the season of 1902 was characterized by absence of injury to crops by many of the well known pests of the farm and garden.

## DIVISION OF CHEMISTRY.

As in past years, the work of the Division of Chemistry of the Dominion Experimental Farms has included investigations in all the more important fields of agriculture—general farming, dairying and stock feeding, poultry fattening and fruit growing.

*Soils.*—A limited number of virgin—*i.e.*, uncropped, unmanured—soils from newly settled districts of the Dominion have been examined, furnishing data as to natural characteristics and probable suitability for the various farm crops.

As far as time permitted, a preliminary examination has been made of such samples of soils received during the year from farmers. This has usually consisted in the determination of nitrogen, humus and lime, in addition to a test for 'sourness.' Notes also upon the physical texture or tilth—a most important matter—are made. In certain instances a more complete analysis has been made, including an estimation of the available mineral plant food present. This latter is ascertained by the use of the one per cent citric acid solution, a solvent, as shown by Dyer, to be approximately equal in strength to that of the exudations from the rootlets of our more common farm crops.

*Enrichment of Soils by Clover.*—A series of pot and plot experiments has been commenced to ascertain directly the value of clover in increasing the soil's store of nitrogen and humus. The soil has been made uniform throughout the series and its nitrogen and humus content determined. At the close of each season the clover will be taken up, weighed and returned to its respective pot or plot, as the case may be. A yearly analysis will show the direct fertilizing value of the clover.

*The Relation of Cover Crops and Surface Tillage to the Moisture Content of Soils.*—To obtain further knowledge on this subject—one of great interest to farmers and orchardists—the investigation begun in 1901 has been continued during the past season. The results published last year receive for the most part corroboration from this season's work. The effect on the soil's moisture content by a permanent sod (two years old) is very well brought out by this series of experiments.

*Sugar Beets.*—In view of the re-awakened interest in beet sugar manufacture in Canada, the sugar-content and degree of purity of the juice of beets grown in various parts of the Dominion have been determined. Among the beets examined are roots from Prince Edward Island, Ontario, Manitoba, Alberta and Assiniboia. The results, speaking generally, go to show that over large areas in Canada beets of sufficient richness and purity for factory purposes—quite the equal of those grown in the United States and the continent of Europe—can be raised.

*Fodders and Feeding Stuffs.*—The more important materials of this nature examined during the past year are:—

1. Milling and manufactory by-products, &c., *e.g.*, bran, comparing the nutritive value of that from the North-west with that made in Ontario from eastern wheat; patent calf meals and condiments; gluten meals and gluten feeds, &c.

2. Roots.—The relative nutritive value of the various farm roots, as determined by their percentage of dry matter and sugar, is again under investigation.



3. *Ensilage*.—In course of analysis there are several mixtures, consisting of clover, corn and sunflowers in varying proportions, as well as an ensilage composed of peas and oats.

4. *Corn*.—The determination of the feeding value of corn grown in hills as compared with that in drills is again being made.

*Flours*.—Interesting and valuable information is being obtained from the comparative analyses of flours manufactured in Washington and Oregon and in our own Northwest. This investigation is being made with a view to furnish information that will prove of service in developing the export trade of Canadian flour to China and Japan.

*Butter*.—In view of the recent enactment in England fixing the moisture content of butter to be accounted genuine at 16 per cent, it was thought desirable by the Commissioner of Agriculture and Dairying to ascertain the percentage of water in Canadian creamery butter as ready for export. At his request we accordingly analysed samples of butter, amounting to 103 in all, collected at creameries and warehouses. The results are exceedingly satisfactory and show that Canadian butter falls well within the limit allowed by the English law. The average per cent of water found in the 103 samples of Canadian butter was 12·33. From a comparison with data obtained from butters made in Europe and sold on the English market, it would appear, indeed, that Canadian creamery butter is much *drier* than that usually offered for sale in England.

*The Composition of Honey*.—In 1901 a series of experiments was commenced to ascertain the differences of composition, if any, between ripe and unripe honey—that is, from fully capped and uncapped comb. It was shown that the unripe or immature honey contained the more water and possessed a tendency to ferment. Further investigations have been made on this subject during the past season.

*Poultry Fattening Experiments*.—In conjunction with the poultry division, a large number of feeding tests have been made to ascertain (1) the relative merits of different breeds for fattening; (2) the feeding value of differently compounded rations, employing mixtures of ground oats, ground barley, meat meal, ground clover, &c., with and without skim milk; (3) the economy of using ground as against whole grain; (4) the advantages, if any, of feeding in crates or coops as compared with feeding in pens offering opportunities for limited exercise. The results of these experiments, it is thought, will be of particular interest and value at the present time, when so much attention is being paid to chicken fattening.

*Clover as a Fertilizer*.—A bulletin with this title has been written conjointly by the Director and the Chemist, embodying the field and laboratory results obtained during the past six years upon the manurial value of clover. It was issued in July, 1902, and has elicited much favourable comment.

*Chemistry of Insecticides*.—A newly exploited material known as 'Bug Death,' and advertised as a substitute for Paris green, has been analysed and reported on.

Among other investigations relating to insecticides and fungicides may be mentioned the analysis of various brands of cyanide of potassium for sale in Canada—a material now largely used in fumigation for the San José scale. An examination of Bordeaux mixture made with washing soda (commercial carbonate of soda) instead of lime has been made. This preparation has been used with good effect for blight on potatoes in Europe, and may be useful here, especially in places where it is difficult to obtain lime.



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*Well waters from Farms and Dairies.*—Over 100 samples have been examined in the farm laboratories during the past year. This useful and popular work has had the effect of calling attention to a matter of vital importance, namely, the necessity of a pure water supply if health and thrift are to be maintained on the farm, and pure wholesome dairy products obtained.

*Toxicological Work.*—During the year several cases of suspected poisoning have been examined at the instance of the Chief Veterinary Inspector.

*Samples received.*—In all, 543 samples have been entered in the laboratory register for examination during the past year. Of these, 432 were received from farmers, and 111 in connection with various investigations undertaken by the Experimental Farms.

## POULTRY.

In this department experimental work, commenced some years ago, with the view of ascertaining the breeds of fowls which make the best winter layers and most rapid flesh formers has been continued. Several crosses, with the same object, have also been made with more, or less success. Results so far obtained in this direction, lead to the conclusion that the type of table fowl, best suited to the requirements of the foreign market is not yet a fixed one. Investigation during the past three winters into the cause, or causes of the numerous weak germs in early spring eggs and the subsequent mortality among the chickens hatched from these eggs, has been productive of interesting and useful results. Experimental feeding of chickens of various breeds, on rations of different quantities and composition, has been continued with most gratifying success and information has been obtained that cannot fail to be of benefit to the farmers of the country. The rapid development of poultry breeding, as a branch of farm work, opens new and large fields for experimental investigation.

## EXPERIMENTAL FARM FOR THE MARITIME PROVINCES.

The experiments conducted at the Experimental Farm at Nappan, N.S., during the past year have covered many lines of work useful to the farmers of the maritime provinces. Trials have been made of different sorts of cereals, fodder corn field roots and potatoes with the object of finding out which are best adapted to the climatic conditions which prevail in these provinces. Many samples of those sorts which have been found most promising have been distributed among the farmers of this section of the country for trial.

Experiments have been conducted with natural and artificial fertilizers on many different sorts of crops and additional experience gained in connection with this work. A considerable area of the upland on the farm has been cleared, and a part of it brought under cultivation thus increasing the land available for crop.

The dairy herd has been well maintained and a yearly report is made of the milk obtained from each cow, and the profit resulting therefrom. A sufficient number of steers are purchased each year to consume the coarse fodders produced on the farm. By judicious use of the manure thus obtained, and the frequent ploughing under of clover, supplemented by small quantities of artificial fertilizers, the land is improving in



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quality and crop-producing power. Further experiments have been made in the feeding of swine and sheep.

The orchards in charge of the Horticulturist have become well established, are making good progress, and many of the trees have fruited well during the past season. From this source a large number of varieties of fruit have been obtained, the most promising of which have been exhibited with other farm products at the principal fairs held in the maritime provinces. Samples have also been prepared and forwarded to the large exhibitions held during the year in Great Britain.

Many experiments have been conducted with different varieties of small fruits and vegetables the results of which will appear in the Annual Report of the Experimental Farms for 1902. A number of sample hedges have been grown on this farm to ascertain which are best suited to the climate of Nova Scotia. These together with a large assortment of ornamental trees and shrubs, and a considerable collection of perennial and annual flowers serve to make this farm a beautiful and attractive place throughout the growing season.

#### EXPERIMENTAL FARM FOR MANITOBA.

Further experiments with all the more important agricultural crops have been carried on at the Experimental Farm at Brandon, Man. These have included the testing of all the promising sorts of wheat, oats, barley and pease, also varieties of Indian corn, turnips, mangels, carrots and sugar beets. The trials made with all these different crops are mainly for the purpose of finding out which are the most productive and the earliest to mature so that farmers may be informed as to which are likely to be the most profitable to grow. Further comparative tests have also been made with grasses and other fodder plants, field corn and roots. These experiments, devised for the purpose of learning what sorts are best suited to the climate of Manitoba, receive much attention from visiting farmers who come in large numbers every summer to gather information from the experience gained at the farm.

Comparative trials have been made with different sorts of vegetables, and lists of those found to be valuable in Manitoba, have been published in the annual report. In this way farmers have been advised as to the varieties most suitable for their gardens.

A large quantity of the seeds of the most useful forest trees for this province were collected in the autumn and will be available for distribution later. Many young trees and shrubs have been grown from seeds and cuttings to be sent out to applicants for planting in the spring. These distributions, which are made annually, have greatly promoted a love for trees and shrubs among the farmers of Manitoba.

In the efforts being made to improve the quality of the native plum of Manitoba a large number of seedlings have been grown, and among these there are some promising sorts both for quality and earliness. Further trials have been made with new sorts of small fruits with much success. The orchards of cross bred and seedling apples have been greatly enlarged, the trees are proving quite hardy and their fruiting is anticipated with much interest.

Further experiments have been carried on in the feeding of steers to gain information as to how beef can be most economically produced with the foods generally avail-



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ble in Manitoba, similar methods have been followed in the feeding of swine and poultry.

The Brandon Experimental Farm has furnished considerable quantities of excellent grain both in straw and cleaned, of many different sorts, for the larger exhibitions in Great Britain in which Canada has taken part.

Under my instructions a very large number of young forest trees have been produced from seed at Brandon for the forestry branch of the Department of the Interior.

## EXPERIMENTAL FARM FOR THE NORTH-WEST TERRITORIES.

During the past year the agricultural experiments conducted at Indian Head have covered a wide field. They have included trials of many of the more promising sorts of grain, also fodder plants, field roots and potatoes. From these tests much useful information has been gathered as to the relative productiveness and earliness of the different varieties under trial. Indian Head has become a large centre for grain raising, the crops in the district are among the best produced in the Territories, and the advantage it has secured in this respect, has been partly due to the good influence of the work of the experimental farm located there.

At this farm demonstrations have been made every season for many years past, as to the best methods for the preparation of the soil, the best time for seeding and the best sorts of grain to grow. The results of different methods of treatment have been shown side by side and farmers have been advised to follow that treatment which has produced the best results. The influence of that teaching is clearly seen throughout this locality in the good methods generally practised which are almost invariably followed by good crops. Nearly two million bushels of wheat were shipped from this small town during the past season.

The experiments with grasses have been a great success, a large acreage of Awnless Brome grass and Western Rye grass has been grown, large crops of hay have thus been secured as well as good pasturage for cattle.

Among the cattle at this farm are Shorthorns, Ayrshires and grades, and good bulls are kept for the improvement of stock in the district. Feeding experiments are conducted with steers and swine to determine the cheapest methods of bringing these animals to a satisfactory weight for market.

The Siberian crab apples have again fruited abundantly, but most of the varieties are small; they are, however, of excellent quality for jelly. None of the larger growing cross-bred sorts have yet fruited, but the trees are growing well and seem to be quite as hardy as those which have stood the test of the winters of the past ten or twelve years. These orchards are being much enlarged and many new sorts added to the collection from year to year.

Many packages of young trees and shrubs are sent to farmers annually, and a large quantity of tree seeds similarly distributed with suitable instructions for planting and growing. The results of this work persistently carried out are now manifest in the largely increased number of plantations about farmers' homes. A large number of sample packages of grain, grass seeds and potatoes have also been sent out for trial during the year to farmers in all parts of the territories. A large number of trees have been grown at this farm also under my instructions to assist the forestry experiments being carried out by the Department of the Interior.



## EXPERIMENTAL FARM FOR BRITISH COLUMBIA.

At the farm established for this province at Agassiz much attention has been given to fruit growing and to the testing of varieties to determine which are the most profitable sorts to grow in that climate. A very large collection has been brought together, numbering over three thousand in all. To make this work thorough, fruit trees have been obtained of many varieties from nearly every country in Europe, from all parts of the United States and Canada, also from Australia and New Zealand. The orchards are making rapid growth and many of the trees are coming into bearing. At the recent exhibition in New Westminster about 350 varieties of apples were exhibited, all grown at the experimental farm at Agassiz, also a large collection of pears and plums. It is doubtful if such a large number of varieties has ever been brought together before in Canada at any single exhibition. As these varieties fruit, their quality is tested and reported on, and after sufficient trial the inferior sorts are discarded. The information thus gained and recorded from year to year must prove very useful to the fruit growers of British Columbia. Apples have not been a heavy crop this season; pears have done fairly well; plums have borne heavily, but the plum rot has been destructive to the crop. Cherries have done fairly well, and small fruits have given abundant yields.

Experiments have been carried on with all the more important farm crops to find out those most productive in that district, and samples of those varieties which prove of the greatest value are distributed among the farmers of that province for test. In this way those sorts best adapted to the country are being rapidly disseminated with good results.

Trials have also been made of different grasses, clovers and other fodder crops, and in the use of fertilizers for farm crops and fruit trees, and much information valuable to the country has been gained.

The cattle kept here, chiefly shorthorns, are doing well. Sheep, pigs and poultry are also under trial.

Plantations have been made of eastern timber trees, also of many ornamental trees and shrubs, and most of these are making good growth. Many varieties of nuts are grown and a number of different sorts have borne fruit. A large assortment of vegetables, including all the leading kinds, have been tried. The results of these branches of work will be found in detail in the Annual Report of the Experimental Farms.

## CATTLE TRADE FOR YEAR ENDED SEPTEMBER 30.

## IMPORTATION OF LIVE STOCK.

The importation of horses and mules, cattle, sheep and swine into the Dominion reported during the past season was as follows:—

Horses and mules . . . . .	26,391
Cattle . . . . .	17,712
Sheep . . . . .	142,581
Swine . . . . .	*162

The above were brought in at various points as shown in detail in the reports of the Chief Veterinary Inspector. (See Appendix No. 13).

\*In addition to the foregoing number of hogs which were imported free, there were 119,750 lbs. of live hogs imported dutiable, valued at \$7,089, the rate of duty on which was 1½cts. per lb. The number of hogs represented by this weight is not stated.



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## EXPORTATION OF LIVE STOCK TO EUROPE.

The exportation of live stock from Canadian ports for the year ended September 30, 1902, was as follows :—

Horses.....	3,861
Cattle.....	166,412
Sheep.....	107,114
Swine.....	Nil.

## EXPORTATION OF CATTLE TO THE UNITED STATES.

The number of Canadian cattle exported to the United States during the past seven years, was as follows :—

1896.....	1,646
1897.....	57,857
1898.....	88,605
1899 .. ..	85,240
1900.....	86,898
1901.....	46,244
1902.....	31,743

## ARCHIVES.

The work of this branch is being prosecuted systematically, steadily and actively, and the collection of archives is carried on continuously both in London and Paris.

The following is a list of the books received during the past year :—

*From London—*

- Nova Scotia General Correspondence to 1728.
- Nova Scotia Journals of Assembly to 1759.
- Nova Scotia Journals of Council to 1800.
- Despatches to Governors to 1840.
- New Brunswick General Correspondence, 1797 to 1801.

*From Paris—*

- Collection de Moreau de St. Merry.
- Memoirs, 1540 to 1676.
- Etat Civil Louisbourg, 1722 to 1754.



III.—PATENTS OF INVENTION.

The following comparative tables show the transactions of the Patent Branch of the Department of Agriculture, from the calendar year 1892, to the year ending October 31, 1902 :—

Years.	Applications for Patents.	PATENTS AND CERTIFICATES GRANTED.			Caveats.	Assignments of Patents.
		Patents.	Certificates.	Total.		
1892.....	3,176	3,417	415	3,832	242	1,500
*1893. ....	2,614	3,153	292	3,445	229	1,345
1894.....	3,291	2,756	462	3,218	301	1,445
1895.....	3,387	3,074	422	3,496	343	1,550
1896.....	3,728	3,488	413	3,901	306	1,420
1897.....	4,300	4,013	284	4,297	377	1,551
1898.....	4,200	3,611	262	3,873	363	1,657
1899.....	4,305	3,151	412	3,563	311	1,467
1900.....	4,628	4,522	482	5,004	283	1,914
1901.....	4,817	4,766	551	5,317	302	2,323
1902.....	5,301	4,391	510	4,901	317	2,339

\* For 10 months only.

DETAILED STATEMENT, Patent Office Fees.

Years.	Patents.	Assign- ments.	Caveats.	Copies.	Subscrip- tion to 'Patent Record.'	Notices to Apply for Patent.	Sundries.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1892. ....	71,840 84	2,794 66	1,270 13	793 32	236 52	89 96	195 33	77,216 76
*1893.....	58,441 81	2,633 71	1,244 70	796 15	285 18	337 81	110 73	63,850 19
1894. ....	73,061 77	3,142 74	1,793 40	764 07	347 21	1,449 80	123 57	80,682 56
1895.....	78,223 52	3,194 00	1,854 35	761 54	245 98	1,951 30	129 79	86,358 48
1896. ....	85,060 61	3,130 56	1,790 65	898 27	420 60	2,245 79	57 04	93,532 52
1897.....	93,298 16	3,250 23	2,108 57	969 33	252 53	2,110 89	128 21	102,117 92
1898. ....	91,176 44	3,641 00	1,935 74	706 50	266 44	1,463 10	172 73	99,361 95
1899.....	98,669 92	3,781 71	1,533 25	1,023 80	198 05	1,912 00	137 83	107,261 56
1900.....	104,848 96	4,255 40	1,405 00	932 54	552 71	1,742 70	115 15	113,852 46
1901....	109,985 59	4,506 07	1,479 25	882 87	592 47	2,484 90	133 22	120,064 37
1902. ....	119,766 43	5,079 20	1,565 35	1,112 59	327 95	1,883 00	162 30	129,896 82

\* For 10 months only.



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The Patent Office fees received during the year ended October 31, show a surplus of \$79,047.84 over the working expenses of the office as per subjoined table.

Receipts.	\$ cts.	Expenditure.	\$ cts.
Cash received.....	129,896 82	Salaries. ....	33,728 91
Cash refunded.....	2,783 11	'Patent Record'....	14,336 96
			48,065 87
		Receipts over expenditure. ....	79,047 84
Net cash.....	127,113 71		127,113 71

The following is a table of the countries of residence of the patentees for the years named :

Countries.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Canada.....	671	685	661	707	740	756	710	601	707	744	654
England.....	298	206	177	179	215	266	261	205	254	256	239
United States.....	2,227	2,061	1,731	1,980	2,270	2,666	2,312	2,038	3,216	3,423	3,164
France.....	26	24	24	21	24	26	39	36	40	50	45
Germany.....	106	88	108	102	117	126	124	112	157	125	100
Other countries.....	89	89	55	85	122	173	165	159	148	168	189
Total.....	3,417	*3,153	2,756	3,074	3,488	4,013	3,611	3,151	4,522	4,766	4,391

\*For 10 months only.

The Canadian patentees were distributed among the provinces of the Dominion as follows :—

Provinces.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Ontario.....	464	437	404	451	430	464	383	310	396	407	373
Quebec.....	131	151	162	177	201	178	171	160	164	185	148
New Brunswick.....	19	23	13	13	12	20	26	7	14	26	14
Nova Scotia.....	16	29	15	19	32	22	27	18	21	17	26
Prince Edward Island.....	1	3	2	6	2	2	4	8	1	0	1
Manitoba and the North-west Territories.....	22	26	38	18	28	36	45	50	42	52	40
British Columbia.....	18	16	27	23	35	34	54	48	69	57	52
Total.....	671	*685	661	707	740	756	710	601	707	744	654

\*For 10 months only.



Patents issued to residents of Canada, with the ratio of population to each patent granted :—

Provinces.	Patents.	One to every
British Columbia.....	52	3,436
Ontario.....	373	5,852
Quebec.....	148	11,141
Manitoba and North-west Territories .....	40	11,665
Nova Scotia.....	26	17,676
New Brunswick.....	14	23,651
Prince Edward Island.....	1	103,259
Total.....	654	...

Statement of the number of patents issued under the Act of the session of 1892, 55-56 Vic., chap. 24, on which the fees are paid for periods of six, twelve or eighteen years, at the option of the patentee ; and of patents on which certificates of payments of fees were attached after the issue of patents originally granted for periods of five and ten years.

Years.	Periods for which the Fees were paid on first issue.			Patents on which Certificates were attached after issue.			
	6 years.	12 years.	18 years.	6 years.	12 years.	5 years.	10 years.
1892 (six months ended December 31).....	2,141	3	35	.....	3	387	25
1893 (ten months ended October 31).....	3,098	9	46	.....	3	279	10
1894 (twelve months ended October 31)....	2,701	9	46	.....	4	433	25
1895 .....	3,049	5	20	.....	.....	416	6
1896 .....	3,443	11	34	2	.....	401	10
1897 .....	3,981	8	24	15	3	262	4
1898 .....	3,586	3	22	176	9	77	.....
1899 .....	3,125	3	23	291	13	108	.....
1900 .....	4,489	4	29	366	21	101	.....
1901 .....	4,719	8	39	408	31	112	.....
1902 .....	4,362	2	27	412	39	59	.....

The preceding tables show that there has been a large and steady increase in the transactions of the Patent Office during the past ten years. The total revenue for the year ending October 31, 1902, was \$129,896.82, exceeding all previous years ; resulting in an increase of \$9,832.45 over the preceding year, and a surplus of \$79,047.84 over the expenditure.

The total number of reports issued by the examiners during the year was 6,474.

Out of the total number of patents granted during the year, there were 3,164 issued to inventors resident in the United States, being 72 per centum of the whole issue.

Patentees who are resident in foreign countries, continue to avail themselves of the privilege granted under section 8 of ‘The Patent Act,’ by giving notice of intention to apply for patents in Canada. The number of these notices registered during the year, was 957, yielding a revenue of \$1,914.



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Section 37 of 'The Patent Act,' confers on the Commissioner the power of granting to patentees, or holders of patents, extensions of time in which they may import, and within which they must manufacture their inventions in Canada. The number of cases in which satisfactory reasons were shown to justify the granting of the importing privilege during the year, was 1,716, and of the manufacturing privilege, 3,417 - the former being an increase of 112, and the latter 1,077, over the preceding year.

The 'Canadian Patent Office Record' continues to be published monthly. It contains a transcript, with drawings, of all claims of patents granted, dates of filing, dates of issue, and length of term for which fees have been paid; also names and residences of patentees, as well as containing a list of registered copyrights, trade marks and designs. This publication is of great and increasing value to all who are interested in patents, trade marks, copyrights and designs. It affords convenient and easy reference to the claims of all patents granted in Canada, and thus enables both inventors and the public, to see exactly what is patented.

This publication is supplied to foreign patent offices, and is also sent without charge to a large number of free libraries in Canada, and in foreign countries, with the object of diffusing in the public interest, the information therein contained. The publication is also furnished to the public at \$2 per annum, or 20 cents for single monthly numbers.

This branch of my department is indebted to the British and United States Patent Offices, for their weekly official reports, which are of material assistance to the examiners and other officers in the discharge of their respective duties.

The classification of Canadian patents, and the general index of inventions from June 8, 1824 (the first Canada patent) to December 31, 1901, is fast nearing completion. It is expected that the latter will appear in print before July 1, 1903.

It may be remarked, that the classification of patents has been a very onerous undertaking, embracing as it does, all Canadian patents from the beginning of the patent office down to the present period; but the time and expense involved in the preparation of this compilation, will be amply repaid in its usefulness to the examiners in the discharge of their duties; insuring a more reliable examination and a great saving of time in making the necessary researches.

It must be understood, that the government undertakes on behalf of the inventor, not only to give him a patent, if his invention possesses novelty, but to conduct a painstaking examination, in order to ascertain what the fact may be in that regard; consequently, every facility should be afforded the examiners to enable them to reach that end.

I have again to direct the attention of patentees and their solicitors, to the necessity of remitting partial fees before the expiry of the six and twelve years' terms, otherwise the patents will cease and determine, the Commissioner not being vested with the discretionary power, under any circumstances, to revive them. A revival can only be secured by a private Act of Parliament, the obtaining of which entails considerable expense to the patentee. It may further be added that the Committee on Private Bills usually discourages applications of this kind, on the ground that no one should be denied the right of using or vending an invention which has become the property of the public. Exceptional cases may arise, however, in which the patentee or the holder of the patent may be justly entitled to relief from parliament.



It is in the interest of both the applicants and the office, that great care should be taken by applicants and their attorneys, in the preparation of the papers and drawings which are required by the rules and forms.

With a view of bringing up the work which has unavoidably fallen into arrears in the examiners' division, owing to unforeseen circumstances, three new assistant examiners will be added to that staff.

IV.—COPYRIGHTS, TRADE MARKS, INDUSTRIAL DESIGNS AND  
TIMBER MARKS.

STATEMENT of fees received by the Copyright and Trade Mark Branch from November 1, 1901 to October 31, 1902.

Months.	Trade Marks.	Copy- rights.	Designs.	Timber Marks.	Assign- ments.	Copies.	Total.
1901.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
November . . . . .	1,264 75	69 00	56 00	4 00	37 00	16 00	1,446 75
December . . . . .	1,440 50	100 50	105 00	2 00	27 00	13 00	1,688 00
1902.							
January . . . . .	1,280 15	94 15	70 00	4 00	117 75	2 50	1,568 55
February . . . . .	1,272 25	75 50	110 00	6 00	22 50	28 00	1,514 25
March . . . . .	1,338 50	61 50	135 50	2 00	29 00	12 50	1,579 00
April . . . . .	1,583 65	84 50	48 00	... ..	31 15	45 00	1,792 30
May . . . . .	1,235 26	87 00	51 00	... ..	15 50	10 50	1,399 26
June . . . . .	1,685 88	81 50	35 00	2 00	33 00	35 00	1,872 38
July . . . . .	1,111 00	101 50	30 00	16 00	18 00	28 50	1,305 00
August . . . . .	736 00	107 00	70 00	10 00	20 00	11 00	954 00
September . . . . .	932 00	116 00	81 00	9 00	17 00	6 00	1,161 00
October . . . . .	1,143 10	105 50	95 00	4 00	57 00	18 00	1,422 60
	15,023 04	1,083 65	886 50	59 00	424 90	226 00	17,703 09



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The following table shows a comparative statement of the business of this Branch from 1891 to October 31, 1902, inclusive :—

Year.	Letters Received.	Letters Sent.	Copyrights Registered.	Certificates of Copyrights.	Trade Marks Registered.	Certificates of Trade Marks.	Industrial Designs Registered.	Certificates of Industrial Designs.	Timber Marks Registered.	Certificates of Timber Marks.	Assignments Registered.	Fees Received.
												\$ cts.
1891.....	1,651	2,385	541	174	307	307	129	129	11	11	51	9,236 96
1892.....	1,773	2,300	536	159	294	294	30	30	27	27	66	9,496 29
1893.....	1,432	2,070	475	126	257	257	41	41	19	19	55	8,013 33
1894.....	1,882	2,720	546	216	311	311	39	39	20	20	77	9,463 63
1895.....	2,184	3,279	601	163	374	374	52	52	20	20	70	11,673 26
1896.....	2,185	3,437	653	212	331	331	68	68	14	14	161	10,579 54
1897.....	2,606	3,548	756	273	446	446	75	75	13	13	94	14,101 93
1898.....	2,576	3,453	734	275	423	423	136	136	15	15	114	13,535 17
1899.....	2,487	2,910	702	237	430	430	112	112	5	5	117	14,161 28
1900.....	2,679	3,213	893	247	447	447	126	126	22	22	136	14,782 53
1901.....	2,605	3,211	888	249	521	521	146	146	24	24	183	16,823 26
1902.....	2,687	3,257	900	196	528	528	164	164	26	26	222	17,703 09

The total number of registrations of copyrights, trade marks, industrial designs and timber marks, including registrations of assignments, was 1893, during the year ended October 31, 1902. This consisted of 900 registrations of copyrights, 528 registrations of trade marks, 164 of industrial designs and 26 of timber marks. There were also issued 196 certificates of copyrights, 53 registrations of interim copyrights, and 12 certificates, 7 registrations of temporary copyrights, and 1 certificate. The total number of assignments of these different rights recorded was 222.

The correspondence of this branch of the department amounted to 2,687 letters received ; 3,257 letters sent.

The amount of fees received during the year, as certified by the accountant, amounted to \$17,703.09.



## V.—PUBLIC HEALTH AND QUARANTINE.

The threatenings of the bubonic plague and of small-pox mentioned in my last annual report have continued throughout this year, and have been supplemented by the threatening of cholera.

The maintenance of strict precautionary measures, ordinary and special, for the sanitary protection of the country has therefore been requisite.

I have been able to make this year a memorable one in the evolution of the protection of the public health by carrying into effect my recognition of three important principles, viz., disinfection at ports of departure, the adoption of electric lighting of my stations, and the division of steerage detention buildings into staterooms. Full details on these points, and the considerations which have led me to them, will be found in the report of the Director-General of Public Health annexed hereto.

The increasing public demand for governmental recognition of the importance of hygiene and preventive medicine is instanced by the fact that I am in receipt of a copy of a resolution, adopted by the Canadian Medical Association at its annual meeting in Montreal last month, urging the consideration by the government of the expediency of creating a separate Department of Public Health, under one of the existing ministers.

The United States Government has this year taken action in this matter by an Act of Congress, making the Marine Hospital Service the Public Health and Marine Hospital Service.

*Special precautions.*—In consequence of the marked threatening of infectious diseases on both our coasts and on our frontier, circulars of warning and instruction were issued from time to time to the transportation companies and to the Quarantine and Customs officers. The exemption from routine inspection of vessels arriving from New York and ports north thereof—usual in healthy years—has not been permissible this year, owing to the continued presence of small-pox in the New England and neighbouring states. So on the Pacific side vessels from San Francisco and ports north thereof have been inspected on account of the prevalence of small-pox in the north western states south of us, and of plague in San Francisco. Since the subsidence of small-pox on that side in August last, vessels from U. S. ports north of San Francisco (including Puget Sound and Alaskan vessels) have been again temporarily exempted by me from routine inspection. Inspection, however, of all vessels from San Francisco is continued on account of the presence of plague in that city.

Frontier and extra coast inspections for small-pox on threatened parts of the international border and of the seaboard have been maintained more or less throughout this year, as the condition to the south of us seemed to me to require.

Such extra inspections I instituted at the following places: Louisbourg in Cape Breton; in Nova Scotia, Canso, Yarmouth, Weymouth, Digby, Bear River and Clementsport; in New Brunswick, McAdam Junction; in Prince Edward Island, Charlottetown, Georgetown and Summerside; in Ontario, Cornwall, Erieau and Rondeau, Owen



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Sound, Thessalon, Bruce Mines, Sault Ste. Marie, Port Arthur, Fort William, Mine Centre and Rainy River; in Manitoba, Sprague, Emerson, Gretna, Morden, Crystal City, Killarney, Boissevain, Deloraine and Waskada; in the North-west Territories, Carnduff, North Portal, Coutts and Macleod; and in British Columbia, Gateway, Tobacco Plains, Rykerts, Rossland with Northport, Grand Forks with Cascade and Carson, Greenwood with Midway and Myer's Creek, Huntington and Blaine; also Log Cabin on the White Pass and Yukon Railway for the protection of northern British Columbia and the Yukon Territory.

In addition to the officers holding these posts, Dr. James Patterson of Winnipeg acted for me in the management and suppression of small-pox in the North-west Territories.

The bubonic plague in San Francisco has claimed thirty-one reported victims within the last four months, bringing the total of deaths from that disease in that city to over eighty. This disease has prevailed during the year in China and in India. It has been present in Australia, Brazil, Egypt, Great Britain, the Hawaiian Islands, Japan, Madagascar, Mauritius, the Philippine Islands, Russia, South Africa, Turkey, and the United States.

Cholera has prevailed in Arabia, Borneo, Ceylon, China, Dutch India, Egypt, India, Japan, Korea, Palastine, the Phillippine Islands, Russia, and the Straits Settlements.

Small-pox has prevailed as a pandemic. It continued to threaten us on both Atlantic and Pacific coasts and along our international frontier.

Amongst the events of the year may be cited the fact that in March last I fixed the period of observation and quarantine for smallpox at eighteen days. This exceeds somewhat the usually accepted period, but increases the security. It is also a period which will meet the requirements of inland health organizations.

The diseases which have been brought to my maritime quarantines during the year have been small-pox, yellow fever, enteric fever, scarlet fever, diphtheria, measles, chickenpox and beri-beri.

In not a single instance during the year has any infectious disease been transmitted from one to another in quarantine. Nor did any quarantinable disease gain an entrance through any of my organized maritime quarantine stations.

While not expecting or hoping to keep out by land quarantine a disease with a period of incubation of about two weeks, as small-pox has, and especially a mild type of that disease which does not prevent the patient moving freely about, my frontier inspections have done great good. Actual cases of disease have been kept from entering, the exposed have been protected by vaccination, and the knowledge of the inspection has caused countless travellers from the United States to be vaccinated before leaving for Canada.

In these ways great good has been done with a minimum interference with travel and traffic.

Details of the year's work at my different stations, at the Tracadie Lazaretto, and under the Public Works Health Act, will be found in the reports of my officers annexed hereto.



## VI.—STATISTICS.

The Statistical Division of the Department of Agriculture is based upon the Union Act of 1867 which specifically assigns Census and Statistics to the exclusive authority of the Parliament of Canada.

In accordance with this assignment of duties the Dominion Parliament passed Chap. 21 Acts of 42 Victoria.

In the Revised Statutes of Canada, 1886, this Act forms Chaps. 58 and 59. Chap. 60 is the authority for the collection of Criminal Statistics.

Chapter 59 Revised Statutes of Canada provides (1st section) for the collecting, abstracting, tabulating and publishing of vital, agricultural, commercial, criminal and other statistics by the Department of Agriculture.

The fourth section gives the Minister of Agriculture power to arrange with any Lieut.-Governor in Council, or with any provincial organization for the collection and transmission of information collected under provincial systems.

The fifth section says :

‘The Minister of Agriculture may, in collecting statistics in the manner provided by this Act, call upon any and all public officers to furnish copies of papers and documents and such information as lie respectively in the power of such officers to furnish, with or without compensation for so doing, as is regulated, from time to time, by the Governor in Council.’

The sixth section provides for the publication of an abstract and record of the various departmental or other public reports and documents.

The seventh section gives power to the Governor in Council to authorize the Minister of Agriculture to cause special statistical investigations as regards subjects, localities or otherwise to be made.

The eighth section empowers the Minister of Agriculture to cause all statistical information obtained to be examined, and any omissions, defects, or inaccuracies discernible therein to be supplemented and corrected as far as possible.

The ninth section is as follows :—

‘Everyone who wilfully gives false information or practices any deception in furnishing information provided for by this Act shall, on summary conviction before two justices of the peace, be liable to a penalty not exceeding one hundred dollars.’

By another section of the Act, the Governor in Council is empowered to appoint temporary clerks or employees for an indefinite period.

The evident aim and intention of these several Acts is the establishment of a Bureau of Statistics, which shall form part of the Department of Agriculture, and in which shall be consolidated the general statistics of the country, the officers in charge of which shall have every facility necessary to enable them to obtain the needed statistics from the several departments of the federal government, and of the provincial governments, or by special statistical investigations.



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A general collection and issue of Dominion government statistics by the statistical division, as directed by the statute, would establish uniformity, coupled with increased accuracy and large economy in compilation.

The statistical division has collected during the year, material to enable it to provide a system for collecting agricultural statistics throughout the Dominion supplementary to the systems employed in some, but not all of the provinces. If a good plan insuring accuracy and early publication could be adopted in Canada, the value to farmers and business men of this information can hardly be over-estimated. The crop reports of the United States, going over all Europe monthly, are a good advertisement of the agricultural possibilities of the country, while an early knowledge of the actualities gives to growers and dealers an advantage, in connection with output and prices, which is of direct pecuniary value.

The frequency with which applications are made to the statistician for information about the crops of Canada, coming as these applications do both from within the Dominion and from outside countries, suggests the advisability of establishing in the near future a statistical inquiry dealing with crops, prices, cost of transportation and like matter.

A great increase in the number of applications for statistics is one feature of the year's experience.

The greater interest taken in Canada is seen in this increased demand.

Annual publications call for statistics of Canada to a much larger extent than in former years. One instance of this may be given. Whitaker's Almanac, which in former years, contented itself with publishing half a dozen pages about Canada, has arranged with the statistician to publish a special Canadian edition with about five times as much Canadian matter in it.

Other publications in the United States and in Europe have shown their increased interest in Canada in the same way.

## HEALTH STATISTICS.

No steps have been taken as yet to provide a better system of collecting vital statistics than that which was abolished in 1891.

In the Provinces of Ontario, Quebec, New Brunswick, British Columbia, Manitoba, and the North-west Territories, the provincial and territorial authorities have placed on the statute books Acts dealing with the collection of vital statistics. Section 4 of chap. 59 Revised Statutes of Canada, already quoted, gives the necessary legislative authority to enable my department to join the provincial authorities in making arrangements for the better collection of different kinds of statistics, without limiting the power of my department to enter upon provincial fields not worked by provincial organizations. By a combination of forces the result would be more satisfactory than by any other system that could be originated by the federal authorities. Instead of clashing statistics there would be statistics having a joint approval.

## CRIMINAL STATISTICS.

The special analysis of these statistics which has accompanied in former years the general report of the department will be found, this year as last, in the preliminary pages of the special blue book prepared by the Statistical Branch.

A few salient points may be given.



The number of convictions in 1901, was 10·49 per 10,000 inhabitants as compared with 10·87 per 10,000 in 1900. The Yukon Territory which in 1900 had 35·18 convictions per 10,000 of its people, had in 1900 only 14·69. British Columbia has improved considerably, though still above the general average, being 25·57 per 10,000 of the persons living there. In 1900 the rate was 29·41 per 10,000.

The satisfactory decrease in the proportionate rate of convictions is due to a general decrease, all the provinces showing a decrease, excepting Nova Scotia and Quebec which show a small increase, and the Territories which have a considerable increase.

The population in the cities and towns of Canada according to the Census of Canada of 1901 was 1,413,226. From the criminal statistics collected, it appears that urban crime represents 29·80 persons in every 10,000 of the urban population, and rural crime 2·35 persons in every 10,000 of the rural population.

The proportion of females among the criminals still shows a gratifying decrease as the following table indicates :—

PROPORTION OF FEMALES IN CONVICTIONS FOR INDICTABLE OFFENCES.

1884-1891 .....	8·60 per cent.
1894.....	7·10 "
1900.....	5·86 "
1901.....	5·67 "

The native born Canadians are less given to crime than the foreign born. Our population is 87 per cent native born and the native born criminals form only 72 per cent of the convicted.

With regard to juvenile delinquency the records show an increased proportion.

In 1884-1891 the per cent of criminals under 16 years of both sexes was 13·64 per cent. In 1899 it was 16·38 per cent, while in 1901 it was 18·03 per cent. There has been a reduction in the proportion of female criminals under 16 years of age ; so that the increase is altogether due to the increase of " bad boys ".

The class of crimes which includes the greatest number of those convicted for indictable offences is " offences against property without violence ", in which class 62 per cent of all these criminals are found. The sub-class in which the criminals are found in greatest number is that which includes larceny, larceny from dwelling houses and from the person.

The returns of 1901 support the conclusion of 1900 that " the tendency in Canada is towards a habitually criminal class which means (taken in conjunction with the smaller number of convictions in 1901 compared with 1900 and of practically the same number in 1900 compared with 1899) a smaller body of criminals and a larger number of repetitions of crime by the same person. The individuals are fewer but more of them have more than one crime, even more than two to their individual record ".

THE STATISTICAL YEAR BOOK.

This work is published by my department under authority of Chap. 59, Sec. 6, Revised Statutes of Canada.



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The demand for the book is greater each year. Notwithstanding that every care is taken to prevent copies going in duplicate to the public, the issue of 1901 was exhausted in a couple of months, and a very great number of requests for the work had to be answered in the negative. Double the present issue and there will not be enough to meet the demand.

The plan of issue is to send first to the members of Parliament and the Government, the members of the several Legislatures and the Executives of the several Provinces, the leading newspapers, Boards of Trade, Banks, Libraries, British Consuls and other representatives in different countries, the Legislative Libraries of other parts of the British Empire. The remainder is held for distribution in Canada according to a permanent list and to meet applications. It is in connection with the permanent list and applications that the supply falls short.

The Year Book for 1901 was printed and distributed at an earlier date than any previous issue. The reason is the earlier issue of the Blue Books of the several Departments of the Federal Government.

The following are the dates of the issues of the Year Book :—

1896 issued.....	Oct. 12, 1897
1897 " .....	Oct. 4, 1898
1898 " .....	Oct. 10, 1899
1899 " .....	Aug. 21, 1900
1900 " .....	June 22, 1901
1901 " .....	May 15, 1902

The Provincial Governments, I am pleased to note, have cooperated most heartily in the effort to publish the Year Book at an early date. The municipal authorities have been prompt in supplying the material required and the various commercial and manufacturing firms, from whom information was sought, kindly and most considerately gave their prompt attention to the circulars sent them.

There is a great demand for back numbers to make up full sets. As a result the issues of 1893, 1894, 1895, 1896, 1898 and 1899 in English are exhausted.

The Year Book in French is increasingly demanded. Of late years (1891-98) there remain very few copies, and of 1891, 1893, 1894 and 1895, none at all.

There has been a very considerable demand for other publications of the Statistical Division. The Criminal Statistics have been sought after by writers of other lands as well as by students in Canada. The Handbook on Canada and the pamphlet on Pulp Wood were in demand in the Wolverhampton and Cork Exhibitions, and the Pulp Wood pamphlet continues in demand.

During the year the letters, circulars and statements sent out from the office numbered about 8 000 and those received 9 000.

The whole respectfully submitted,

SYDNEY A. FISHER,

*Minister of Agriculture.*







## APPENDICES

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## PUBLIC HEALTH.

No. 1.

## REPORT OF THE DIRECTOR-GENERAL OF PUBLIC HEALTH.

(F. MONTIZAMBERT, M.D. Edin., F.R.C.S., D.C.L.)

October 31, 1902.

SIR,—I have the honour to submit this, my annual report as Director-General of Public Health to October 31, 1902.

The year has been marked by the continued threatening of bubonic plague, cholera and small-pox.

This has required the maintenance of strict measures, ordinary and special, for the sanitary protection of the country.

It is a memorable year in the evolution of public health administration. It is to be distinguished by action taken on several general principles which I have advocated, which have been recognized as theoretically desirable, but which it has not been heretofore possible or expedient to enforce.

Amongst these I may mention three :—

1. *Disinfection at port of departure.*—The ideal of quarantine inspection would, of course, include the presence in every passenger shipping port of Europe and the Orient of medical officers responsible to this government for the inspection, vaccination and disinfection of intending immigrants to this country.

This properly carried out would destroy infection before embarking; would lessen the chance of disease during the voyage; would lessen the risk to cabin passengers of contracting disease from the steerage; and might well replace any routine disinfection of healthy vessels—even during epidemics—at quarantine, and so, by limiting quarantine at our ports of arrival to inspection and the treatment of actual infection only, greatly lessen interference with travel and traffic.

This year, for the first time, all the passenger steamship lines from China and Japan to British Columbia and to United States Puget Sound ports, via William Head and Victoria, have been properly dealt with at the ports of departure in the Orient by the routine disinfection there of steerage passengers and Asiatic crews. This has, when properly certified to by accepted officials, obviated the previously existing necessity for routine disinfection of all such healthy vessels, and has reduced quarantine delay of such vessels by our officers on the Pacific coast to the time necessary for careful inspection only, to the manifest advantage of the vessels, those on board, and all the interests involved. In Hong Kong in two instances, this summer, plague cases were discovered amongst the intending passengers.

2. *Electric lighting of stations.*—Another accepted principle in public health administration may be said to be that at quarantine stations when passengers and seamen are liable to be landed and detained, there should be provided for them approximatively the same conditions as their tickets or engagements secured them on the vessel. Modern vessels are lighted by electricity. Such lights and lamps cannot be landed. The ships no longer carry gangs of lamp trimmers capable of safely handling a station's coal oil lamps when landed with the passengers. The danger of fire from such lamps with ignorant or careless persons is moreover a very serious one. Furthermore electric lighting greatly facilitates disinfection and other public health procedures at night.



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This year the Grosse Isle station in the St. Lawrence and the William Head station near Victoria, B. C., have been fully equipped with the electric light. Similar action with regard to at any rate the quarantine stations of Lawlor's Island, Halifax, N. S., and of Partridge Island, St. John, N. B., is very much to be desired, and will, I trust, commend itself to your favourable consideration.

*3. Dividing steerage detention buildings.*—This has become a necessity in compliance with the general principle already referred to, that accommodation at our stations should approximate that on the vessels. Steamships from Europe now for the most part have even their steerages divided into small compartments, or staterooms. This helps towards comfort, privacy and decency. Action in this matter has this year been taken at the Grosse Isle station in the St. Lawrence by the dividing up of three of the formerly open third class detention buildings into compartments, staterooms, dining-rooms, &c. Similar action is desirable at the other Atlantic quarantine stations.

*Observation for Small-pox.*—Amongst the events of the year may be cited the fact that in March last the period of quarantine of observation for small-pox was, by your ministerial order, fixed at eighteen days. This somewhat exceeds the fourteen day period, accepted by most other countries as generally sufficient. It meets the requirements of the inland health organizations.

*Special Precautions.*—In consequence of the marked threatening of plague, cholera and small-pox during the year numerous warning circulars were issued. The exemption from routine inspection of vessels arriving from New York and ports north of it, usual in healthy years, has not been allowed since my last report, owing to the continued presence of smallpox in the eastern group of the United States. Similarly, on the Pacific side, vessels from San Francisco and ports north of it have been inspected on account of small-pox in the Pacific States south of us, and of plague in San Francisco. Since the subsidence of small-pox on that side in August last, vessels from U. S. ports north of San Francisco (including Puget Sound and Alaskan vessels) have been again temporarily exempted from routine inspection. Inspection, however, of all vessels from San Francisco is continued on account of the presence of plague in that city.

Precautions as to funnels on hawsers, guarding of gang planks, &c., to prevent the embarkation of rats at ports of departure or their landing at our ports, have continued to be impressed upon the shipping companies.

On the Pacific side careful inspection of all arriving Asiatics has been carried out throughout the year. This includes the testing of the temperature and the examination of the glandular regions. From the beginning of the quarantine year, Nov. 1, 1901, until in January, 1902, the C.P.R. steamers adopted disinfection before sailing from the Orient, five of their steamers carrying 1,532 orientals arrived. In their case the routine disinfection was carried out at the William Head station, as used to be done not only for these vessels, but for those of the United States and Japanese lines running to Puget Sound ports via Victoria.

Frontier inspection for small-pox on threatened ports of the international border, and extra inspection at some of the ports have been maintained more or less throughout the year, as the conditions to the south of us seemed to require.

*Public Health Department.*—The progress of hygiene as a branch of the science of medicine has been so rapid and general in the last decade that there is now an ever-rising demand for governmental recognition of its importance. The voice of the Canadian medical profession was heard on this matter at the annual meeting of the Canadian Medical Association, held in Montreal last month, when some 350 delegates were present. The following resolution was carried with applause. Moved by Dr. E. P. Lachapelle, President of the Provincial Board of Health of Quebec, seconded by Dr. J. R. Jones, President of the Provincial Board of Health of Manitoba :—

‘Whereas, Public health, with all that is comprised in the term sanitary science, has acquired great prominence in all civilized countries, and



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‘Whereas, Enormously practical results have been secured to the community at large by the creation of health departments under governmental supervision and control, and

‘Whereas, Greater authority and usefulness are given to health regulation suggestions when they emanate from an acknowledged Government Department ;

‘Therefore, Be it resolved that in the opinion of the Canadian Medical Association, now in session, the time is opportune for the Dominion Government to earnestly consider the expediency of creating a separate department of public health, under one of the existing ministers, so that regulations, suggestions and correspondence on such health matters as fall within the jurisdiction of the Federal Government may be issued with the authority of a Department of Public Health. That copies of this resolution be sent by the General Secretary to the Governor General in Council, and to the Honourable the Minister of Agriculture.’

Amongst the uneducated also, and the half-breeds and foreign settlers in our territories, the issuing of rules and regulations in the name of a department of public health would obviate much of the difficulty now experienced from time to time, as set forth in the annual report published herewith of Dr. James Patterson.

The United States have this year taken action in this matter by an Act of Congress making the Marine Hospital Service the Public Health and Marine Hospital Service.

The service will remain a bureau of the Treasury Department, and the Secretary of the Treasury is instructed to prepare rules for the service and to prescribe uniforms for its officers and employees. His annual report will contain a detailed account of the work performed by the health service.

*Public Health Service. Dominion Medical Registration.*—The Act rendering this registration a possibility, when all the provinces shall have enacted concurrent legislation, passed the Dominion Parliament during this year. When the holding of a Dominion license shall have thus become a possibility, it will seem very desirable that medical officers to be appointed thereafter to the public health service, be required to hold such licenses. That service could then become a regular one, with promotion within its own ranks. It might then be much more of a training school in sanitary science than it can be now. Moreover, when a vacancy occurred it could be filled by the promotion of an officer of the service from elsewhere. This would do away with the present very real danger in having to fill a vacancy from amongst the local practitioners of the port, none of whom may have had time or opportunity to devote to this specialty. The problems in preventive medicine and in the handling of the shipping interests that confront the quarantine officers, and the vital interests, both of the public health and of the shipping, which are involved, are of far too serious a nature to entrust to untried and inexperienced hands, when this can possibly be avoided.

*Inspection Service.*—In June last I visited and inspected the quarantine station of Grosse Isle, in the St. Lawrence. Later in that same month I inspected the leper lazaretto at Tracadie, N.B., and thence proceeded to the various ports and places connected with our work on the Atlantic coast, viz.: Chatham, McAdam Junction and St. John, New Brunswick ; in Nova Scotia, Digby, Bear River and Clementsport, Weymouth, Yarmouth, Halifax, Canso and Pictou ; in Cape Breton, Sydney and Louisbourg ; and in Prince Edward Island, Charlottetown.

Returning to Ottawa on July 18, I started again west, proceeding along the frontier ports of New Ontario, Manitoba, the Territories and British Columbia, as far as Midway, B.C. Returning from there as far as Grand Forks, I went down by the newly opened road to Spokane and thence to Seattle, and so by Huntingdon and Blaine to Vancouver and Victoria.

Finding from all my inquiries along the frontier and in the State of Washington and other contiguous states that small-pox had almost died out—for the time, at any rate—I was enabled, with the cordial assent of the health authorities of British Columbia, the Territories and Manitoba, to recommend the suspension of most of the frontier inspections, and of the inspection of Puget Sound ferry and other boats and vessels returning from Alaska. This recommendation you put into force.



It, of course, remains to be seen whether or no a fresh exacerbation of the epidemic will take place with the colder weather and closed houses, requiring the resumption in full or in part of these precautionary measures.

*Congresses and Meetings.*—The annual meeting of the Canadian Medical Association took place in Montreal last month, under the presidency of Dr. Shepherd. It was very largely attended. The meeting of the American Public Health Association does not take place this year until December. It is called to meet in December, when the southern quarantine and public health officials will have more chance to be able to attend.

*Bubonic Plague.*—In San Francisco this disease continues to exist. There has not been—as yet, at any rate—any great outbreak, but cases have been occurring with a persistence that is full of import. At the date of my last report, a year ago, there had been officially reported since the first reported case in March, 1900, forty-five cases and forty-one deaths. The total number of reported cases now exceeds eighty. There were five in July last, ten in August, nine in September and seven this month, thirty-one cases in the last four months. All of these cases ended fatally.

In view of this condition of things, careful inspection has been made throughout the year of all vessels from San Francisco arriving at British Columbian ports.

At the conference of State and Provincial Boards of Health of North America, held at New Haven, Conn., on the 28th and 29th instant, Professor F. C. Robinson, of Brunswick, Me., presented the following resolutions, in behalf of the State Board of Health of Maine, expressing the opinion of the conference as to the conduct of the health authorities of San Francisco in dealing with the plague question :—

‘Whereas, Thirty cases of plague have occurred since July 13, 1902, no information as to their origin or exact location having been furnished, no effective steps having been taken to restrict the spread of the disease, the City Board of Health of San Francisco being helpless, and the *mala fides* of the State Board of Health of California having been fully established by the history, supported by documentary evidence in the possession of this conference ; therefore, be it

‘Resolved, That the conference of State and Provincial Boards of Health of North America views with abhorrence the irretrievable disgrace of the present State Board of Health of California, and pronounces the plague situation in California a matter of grave national concern ; and be it further

‘Resolved, That the national conference of State and Provincial Boards of Health of North America does hereby advise the various State boards of health of the United States to consider the propriety of calling upon the Surgeon-General of the United States Public Health and Marine Hospital service to arrange at the earliest possible date a joint conference for the purpose of eradicating the plague from the United States.’

The resolutions were unanimously adopted.

At the date of my last report, a year ago, this disease was reported present in Liverpool, and in Glasgow. On November 14 the Health Committee of Liverpool declared that city to be free from the bubonic plague. Almost simultaneously with its outbreak in Liverpool, plague made its appearance in Glasgow. It was officially announced on October 31 that four cases of bubonic plague had occurred amongst the servants in the Central Station Hotel. The first illness occurred on Saturday, October 19 ; the second on the following day ; and a third on Monday, October 21. The cases were reported to the Sanitary Department on October 23, when the patients were conveyed to Belvidere Fever Hospital. The clinical symptoms suggested plague, and a bacteriological investigation was at once undertaken and fully confirmed the suspicions of the medical officer, Dr. Chalmers. A fourth case was removed to Belvidere on October 31, also from the Central Hotel, and a fifth case occurred on November 1, this patient being a barmaid in the service of the Caledonian Railway at Airdrie Station, who returned to the city every evening and slept in the Central Hotel. One of the patients died. All the patients were employed or resided in the basement of the hotel, and it is regarded as probable that rats got into the building, and that the illness has been so contracted.



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No fresh cases were reported from Glasgow after November 1.

Plague has prevailed during the year in China and in India. It has occurred in Australia, Brazil, Egypt, the Hawaiian Islands, Japan, Madagascar, Mauritius, Great Britain, the Philippine Islands, Russia, South Africa, the United States, and Turkey. And was brought to shipping ports in Great Britain, France, Spain, and the United States.

In Cape Colony the outbreak of plague which began on the 2nd February, 1901, seemed to have come to an end in August of this year. But a more recent official report reads as follows :—

‘One case of plague was discovered at Port Elizabeth on the 23rd September, the patient, a European male adult, dying on the 25th September. The last preceding case occurred on the 8th of July, 1902.

‘No other cases of plague have been discovered or are under treatment in the colony during the week ended Saturday, the 27th September, 1902.

‘Plague rats have during the week been found in a number of places in Port Elizabeth, the last being discovered on the 26th September.’

The total number of cases of this disease in Cape Colony to the 16th August last is officially reported as 907 ; the deaths, 438 ; percentage of deaths to cases, 48·3. The disease prevailed with greatest violence in the Cape Peninsula, 745 out of the whole 907 cases occurring there. The other places in which plague chiefly prevailed in Cape Colony were Port Elizabeth 135 cases, Mossel Bay 13 cases, and in all other places 14 cases. Of the total 907, 228 were Europeans, 465 were coloured persons, and 214 natives.

In India the ravages of plague have continued throughout the year. In the Bombay districts, in Bengal, in the North-west Provinces, and in the Punjab, the deaths ran up to over twenty thousand per week. In the Punjab alone this spring the deaths from plague were averaging 70,000 monthly.

In Egypt plague has been present, most of the cases occurring at Alexandria.

In Hong Kong the usual seasonal outbreak which has made its appearance each year for some years past was not wanting this year. 431 deaths were reported from May 10 to September 30. A smaller outbreak than usual.

In Australia the deaths from plague included that of Dr. Wray, the health officer of Brisbane. In Sydney, New South Wales, plague was introduced November 14, 1901, and from that date to April 22, 1902, there were one hundred and four cases.

In Japan, plague has occasionally made its appearance at Kobe and Yokohama. In Formosa it has prevailed extensively.

In Russia the plague continues to occur in the city of Odessa. The Russian authorities are taking extraordinary precautions and extreme measures to limit and eradicate the disease.

In Honolulu plague made its appearance in December last. Four deaths occurred from the 11th to the 14th inclusive. A floating sulphur plant was at once established for the purpose of fumigating wharfs and vessels. The outgoing restrictions were removed on April 2.

Since my last annual report, the report of the Indian Plague Commission has been received. The Local Government Board of London has just issued an important volume, giving the results of an investigation of the bubonic plague in all parts of the world during the three years, 1899–1901.

Both reports refer to the question whether plague manifests itself at the outset of epidemics in atypical clinical forms.

This question, the commissioners observe, is both of theoretical interest and of practical importance. In certain instances there have been observed prodromal epidemics of ‘mumps,’ and it is possible that these may have been due to an attack by attenuated plague bacilli on the mucous membrane of the mouth, causing local buboes. There is a suspicion that one plague epidemic was set on foot by a group of Parsees who had suffered from coryza with high temperature, though laboratory investigation failed to detect the bacillus. Pestis minor has also been suspected of initiating epidemics, but only one definite case came before the commission. Increased mortality from respiratory diseases has been repeatedly noted as a preliminary to plague outbreaks both in ancient



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and modern times. The plague at Avignon in the year 1348 was an example. Before the third epidemic at Poona, the deaths from respiratory diseases, which in the three last months of 1898 had averaged 99 cases, rose to 172 in January, 1899, immediately before the plague epidemic began. In other places the disease has shown itself in septicaemic form, and this has been observed in epidemic centres like Kumann and Garhwal. The commissioners think that where an outbreak is set up directly from a pre-existing case the type developed will be that of the case, but where there is a break in continuity, the bacillus may be attenuated during its absence from the living body, and such attenuation may account for the mildness of the disease in places like Oporto and Glasgow.

The report of the Local Government Board states that a curious feature of the disease is its mimicry of other affections when it first invades a new region. The plague when it first appeared in a new field often presented curious resemblances to some common-place current malady, such as influenza, typhoid fever, or malaria. Repeated mistakes were made in the diagnoses at the beginning of the outbreaks not only where the plague was not looked for, but in countries where the officials and practitioners were alert in watching for it, and believed that they were prepared to detect its appearance.

Under the heading of Sea Traffic the commissioners report that the only way in which plague seems likely to be conveyed to any European or distant country from India is by sea traffic from its numerous ports. Medical inspection of outward bound vessels was begun at Bombay and Karachi early in 1897, no vessel being allowed to leave until all on board had been medically examined, and any plague patients removed.

Similar regulations were extended to other ports. Later on, in accordance with the views of the Venice Convention, medical examination of crews and passengers was made before embarkation, but the details varied in accordance with the prevalence or non-prevalence of the disease in the port. Clothing and bedding of crews and deck passengers from infected areas are disinfected on shore before vessels leave Bombay, Karachi, and Calcutta. Major Crimmin reports the method of examination at Bombay, thus :—

‘I will divide vessels into two classes, first, those bound for Indian ports, and, second, those bound for ports out of India. The crews and passengers bound for Indian ports may be examined on board according to the present regulations, but the majority of them are examined on shore. For instance, in the case of the Shepherd Company, who run 35 coasting passenger ships in the week, all the crew and passengers are examined in sheds on shore before they go on board. If a ship is bound for a port out of India, the crew are brought on shore from such vessels for examination in accordance with the Venice Convention. The passengers for such vessels are also examined on shore before they go on board. When there are large numbers of native passengers they are fallen into a line in batches of 100 or 200, according to the size of the examination shed. They open their body clothing, and a medical officer feels each man's chest with both hands, which enables him to detect any increase of temperature. The superficial glands in the neck, armpits, and groins, are then examined. The tongue and eyes are looked at. If he is found to be suffering from a rise of temperature or marked enlargement or tenderness of any of the glands, he is sent to a place set apart for such cases, to undergo a more rigorous examination. His temperature is taken with a Hicks 1½ minute thermometer in the armpit, and if he is found suffering from a marked rise of temperature, or enlarged tender glands, he is rejected. The crew are examined in precisely the same way as passengers.... If ships are bound for ports out of India the crew are invariably examined on shore to meet the letter of the Venice Convention. In the case of vessels which are in dock, and which do not want to go to the inconvenience of bringing their crew on shore after they go into the stream, such crews are examined on shore the day before the vessel sails. We again examine such crews on the day of sailing and as near as possible to the time of departure, after which no loading of cargo or communication with the shore is allowed. We carry out this second examination for two reasons. First, for our own reputation, and to do the best we possibly can to keep plague off ships; and, secondly, to meet the wording of the Official



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Bill of Health, which states that the vessel, with so many crew, and so many passengers, is at the time of sailing free from plague and certain other infectious diseases. . . . At the examinations for plague, if we find any person suffering from a marked rise of temperature, they are detained until such time as the temperature goes down to normal, or until we are certain that the fever from which they are suffering is not that due to plague. We go so far as to take out natives with chronic enlargement of the glands of the groin, more especially on ships bound for foreign ports. We do this in the interests of the ship, and often at the request of the captain. Because if such a person with enlarged glands was unfortunate enough to be suffering from fever on his arrival at a foreign port from Bombay, it is possible that the health officer would class him as a plague case, or return him as a suspicious case.'

When the medical examination is complete passengers are passed down a gangway to the ship in dock, and the vessel is then moved off the dock wall until she can be taken out. If the vessel is in the stream the passengers are conveyed direct, and she goes to sea at once. The vessel herself is also overhauled and sanitary requirements insisted on. The disinfection of baggage appears also to be well carried out. Facts show that the measures taken have been most effective.

With regard to measures to prevent the spread of plague from one part of India to another by railway :

Such measures were undertaken on an elaborate scale, and on certain occasions included even a system of detention camps, or the stoppage of all booking of passengers from infected places. As a rule, however, medical examination of passengers, including temperature observations, were regarded as sufficient, and Sir Andrew Wingate thought that this gave even better results than detention camps. He held that the work was valuable, not only for the cases actually ascertained, but also as a means of preventing sick people from attempting to leave infected areas. The commissioners, on the other hand, have had regard to the great expense involved, and the inconvenience to the public, and also the large staff required to carry out the work—a staff which they think might have been better employed in other plague measures. Their conclusions are as follows :—

1. 'That, while the spread of plague has taken place in a very large number of cases along the railway line, the number of cases of plague detected among travellers, under the different systems adopted, has not been large ;

2. 'That any system of land quarantine imposed with the object of detaining all passengers from infected areas, either at a point where the infected and uninfected areas join, or at differing places within the uninfected area, results in great hardship to the travelling public, and has not been found in practice to prevent the spread of plague ;

3. 'That in the special instance of Sibi, the objections to such a system are, owing to the fact that the traffic inwards is concentrated and easily controlled, not so great as elsewhere, while it is very important to take every precaution to prevent plague passing over the north-west frontier of India ;

4. 'That any system of medical examination on railways which falls short of keeping travellers under detention for the ordinary period of incubation must be defective as a measure for stopping all infected persons ;

5. 'That, considering the small results attained by medical examination on railways, it is not necessary or expedient to maintain so many places for examination as hitherto ; two of us, Dr. Wright and Dr. Ruffer, are of opinion that it would be well altogether to abandon medical examination on railways, except on the confines of important unaffected areas which communicate with an infected area by only one line of railway ;

6. 'That it appears to be unnecessary to medically examine people travelling between places within an affected area ;

7. 'That it may be a wise precaution, in cases where large concourses of people from infected areas are expected to go to a place for a religious festival or similar gathering, to prohibit their travelling ;



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8. 'That the disinfection of the personal effects of travellers by railway should not be attempted because—

(a) disinfection, if carried out at all, should be thorough, and would then cause an amount of delay and inconvenience which will not be justified by the results; and

(b) people when themselves travelling can evade the disinfection of their personal effects by despatching them by goods train. The disinfection of articles sent by goods train would be an impossible task.'

In relation to these land restrictions it is observed that old methods of treating epidemic diseases, such as quarantine, cordons, and segregation, are being gradually given up in favour of notification, isolation, disinfection, and inoculation. The commissioners hold that, 'If every case of plague could be isolated at once, and if the personal effects, clothes, and house of a patient were disinfected, and further, if all plague-infected rats were removed and burnt, and the houses in which these had been found were disinfected, and, finally, if the healthy persons who are exposed to infection would be inoculated, the ravages of plague would be minimized.'

*Agencies by which plague is disseminated.*—On this point in the report of the commissioners, village experience is relied on, as in large cities the introduction of the disease has not been successfully elucidated, whether in China, Egypt, Spain, Australia, Glasgow, or the large towns of India. Concerning villages, the subject is dealt with under the headings of Human Communication, Infection by Rats, Infection by Clothing, and Infection by Merchandise. In many cases the first-mentioned cause was in operation, and numerous instances are given. As regards rats, the proof is much more difficult. Examples, however, have occurred in which plague-infected rats travelled out from a village and were found dead, in one case amongst heaps of corn a mile and a half away, with the result that six people camped around were infected. No evidence was obtained of general migration of rats following an outbreak of plague among them, but rather that they died where they were attacked. The commission believe that in the great majority of instances infection was conveyed into uninfected places by human communication, and in view of this belief they require considerable evidence before they accept rats as the likeliest agency. Following this line, they say: 'Even after the exclusion of all those cases where the possibility of the introduction of the infection by infected articles or by direct human communication does not appear to have been duly considered, there appears to us to be a residuum of cases in which there is sufficient evidence to make it probable that rats have carried the infection of plague from one village to another situated at no great distance from it.' As to clothing, two stewards who arrived in London in September, 1896, contracted the disease from clothes which they had brought from Bombay, and kept in boxes until reaching England. No quite conclusive cases of spread from village to village by clothing were, however, brought before the commission, the difficulty always being to exclude other possible sources of infection. As concerns merchandise, village opinion frequently attributed the spread of the disease to grain, but the commissioners seem rather struck by the want of evidence of the agency of merchandise in carrying the disease from large towns; and it is pointed out that, in Bombay, the only likely articles are gunny bags, which are brought into Bombay with grain, and then returned to the country for refilling. One instance is given in which these gunny bags were open to suspicion, but even here there were other possibilities.

In concluding this part of the subject, the finding arrived at is that the chief agency for spreading the disease to uninfected places consists of travellers. The lines of human communication are followed by the infection, especially lines of steamships and railways. Even then the spread is slow, partly due to preventive measures, but partly also to the low degree of infectivity of plague, as if each town only became infected from a town near at hand sending it many incubating cases. In Armadabad there were in October, 1896, ten imported cases and two indigenous. In the next three months there were 62 other imported cases detected at the railway station or in the town, but no secondary infection resulted. In the next four months 27 fresh importa-



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tions were responsible for only 26 cases occurring in the town, and then the importations became fewer and the indigenous cases died out. Various other examples are given.

The commissioners are of opinion that though some animals, such as squirrels, monkeys, mice and cats, may be attacked by plague, they need not be regarded as likely disseminating agents, while dogs, jackals and birds are insusceptible. No other agencies, indeed, than man and rats are considered of importance, and the question as to the comparative influence of these two agencies is discussed in detail. The result is summarized in the following conclusions :—

1. 'In some places, where severe epidemics have occurred among men, rats have not been affected at all, and in many places where there have been plague epidemics among men the disease has not appeared among rats in epidemic form.

2. 'Occasionally where there has been considerable mortality among rats there has been an absence of plague among men.

3. 'Even when there has been the largest amount of plague among rats, the risk to the persons who came in contact with these infected rats appears not to have approached that undergone by persons inhabiting houses in which there have been plague patients, or persons coming into contact with pneumonic plague. There are however, cases, such, for instance, as the case of Mahlgahla and the case of Chak Kalal, where a very considerable number of plague cases in a village has been directly attributable to the dissemination of infection consequent on an epidemic of plague among rats.

4. 'Since the number of plague bacilli escaping from the infected human organism must be presumed to be greater than the number which escape from a plague-infected rat, *a priori* it would seem clear that a single infected man must constitute a greater danger than a single infected rat; but, on the other hand, seeing that the excreta of rats may be deposited anywhere throughout a house, and that the number of rats which are affected may many times exceed the number of men who are affected, a severe epidemic among rats must, we think, tend considerably to the spread of infection.

5. 'The chief importance of rats in the epidemiology of plague seems to us to arise in connection with the first outbreak of the disease in an infected place, for we have seen that in many instances rats become infected before men, and they scatter plague broadcast over an uninfected place.

6. 'When plague is once established in a place we have no doubt that human agency is a more important factor in spreading the disease than the agency of rats.'

*Mode of Communication.*—With regard to this question the commissioners, after dealing fully with the bacteriology, incubation period, and clinical features, pass to the infectivity of the disease. They have come to the conclusion that the risk of direct infection from patients is slight. Primary pneumonic plague, however, constitutes an exception to the general rule, and this type of the disease is highly infective. The same may be said as to those exceptional cases of plague in which specific rashes of a bullous or pustular nature appear on the skin. In the ordinary bubonic plague, which is by far the most common form of the disease, the infected material is not thrown off from the skin, or to any considerable extent from the lungs, but appears only in the excretions, and this only in the last stages of the disease. What holds good with regard to the escape of infective material from the human patient applies also to plague-stricken rats. Houses in which human beings or rats have died of plague, and clothes and other effects which have been soiled by the excretions, are infective. All these when once contaminated may remain infective for very considerable periods. The danger which accrues to those who live in infected houses would appear to be much greater than that which accrues to those who merely come in contact with plague patients. The full measure of the infectivity of plague has not, the commissioners think, been fully disclosed in India, inasmuch as in the overwhelming majority of cases measures have been taken either to extinguish the infection in contaminated houses, or to remove the people from them.



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*Rats and the Plague.*—The Sydney, N.S.W., correspondent of the *British Medical Journal* states that an important paper on the diffusion of plague has been issued by the Board of Health, Sydney, in the form of a report by the president, on the case of the troopship *Antillian*, which arrived at Sydney from Cape Town infected with plague on March 2, 1901.

The vessel left Cape Town, S.A., on February 1, 1901, with a clean bill of health issued at that port. She did not touch at any port until arrival at Albany, West Australia, on February 22, and no case of sickness had occurred on board. After leaving Albany fifteen dead rats were found during the process of cleansing the holds under the supervision of the mate and the boatswain. One of the deck hands who was employed in this work fell ill on February 27. On arrival at Sydney on March 2 a diagnosis of plague was made by the City Health Officer, Dr. W. G. Armstrong; the patient died the next day. On March 2 and 4 some more dead rats were found on board, and on examination these were found to be infected with plague. Another case occurred on March 12, in the person of the storekeeper who had supervised the removal of the ship's stores to a lighter, during which process ten more dead rats were found in the store-room.

A fact of important significance is brought out by this case: namely, plague communicated to the rats which infested a vessel of 3,686 tons, to the number of about 100, continued among them for twenty-nine days, and yet at the end of that time had killed but a minority of them, although food was easily accessible to them only in one circumscribed part of the ship. From this it may be inferred that length of voyage, within the limits common with steamships at the present day, does not avoid the risk of infection run by clean ports which are in communication by sea with infected ports.

Another fact of even greater importance is revealed by it; it is that a ship may become infected at a port which lay under no suspicion of plague at the time she took her departure from it. Under certain circumstances, which fortunately did not obtain in the present instance, communication of such a ship with any clean port at which she arrived would necessarily be unrestricted. There is every reason to believe that the epidemic at Sydney in 1900 originated in this very way, free communication with a foreign port having continued after it had become infected, either from want of knowledge on the spot that plague was present, or from undue delay in notifying its presence in accordance with international conventions. From this it is apparent that measures aimed at restricting the export of plague rats cannot be effectual unless they are universally and constantly taken; they must be directed to preventing interchange of rats without reference to the presence or supposed absence of the disease among them; and they must be taken at all times and as a matter of routine, because, if their application be deferred until the presence of plague has been ascertained, they will often (or, in all probability, usually) be taken too late.

The most important point in the prevention of importation by sea is one which was sufficiently well established by the experience gained here during the recent epidemic, namely, that ships can be kept free from rats by the judicious use of sulphur fumes, applied at suitable intervals. This need entail neither great trouble nor expense worth mention, nor important interference with the course of trade. Much would be done to prevent interchange between ship and shore rats if the slight precautions in mooring vessels prescribed by the regulations of the Board of Health were universally taken.

A communication from Gamaleia based on the examination of 23,131 rats, announces that the sewer rat is seldom found on ships. Out of nearly 10,000 rats found in the centre of Odessa about 95 per cent were the sewer rat—*mus decumanus*—while 96 per cent of 1,178 rats found on vessels were of the species *mus rattus*, or the domestic rat. He also found that the three principal varieties of the latter, the black, the red and the Alexandrine rat, do not live together but inhabit different vessels. The black rats were found mostly on ships from England and the Black Sea ports, while the Alexandrines were found on Turkish and Egyptian vessels, and the red species on ships from the Orient. He found that the plague among the town, or sewer rats, was strictly localized in three foci. One was the restaurant where the first patients with the plague were discovered. This focus was exterminated by the destruction of



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the supplies of rice, cabbages, &c., in the cellar. The second focus was a freight platform, and this focus also was exterminated after the destruction of a few bags of spoiled rice on it. The third focus is a large freight warehouse; as so many goods are stored there, it has proved impossible to destroy them all; consequently this focus still exists. The determination of these limited foci suggests that possibly the plague is not transmitted directly from one sewer rat to the other, but indirectly by the mediation of infected rice or other foodstuff. Proust commented on this communication that possibly the immunity enjoyed by Europe in respect to the plague may be due to the predominance of the sewer rat, which seems to be less susceptible to the natural plague than the other species.

According to the *Journal of the American Medical Association*, Galli-Valerio takes up the statement of Simond that the transmission of plague is largely due to infected fleas from rats and has investigated the subject thoroughly, studying the different species of fleas found on rats and their tendency to bite man. It appears that one species, the *P. serraticeps*, which has been gathered off rats, may bite man, but this must be very rare as only one observer has ever obtained it from the rat. He applies to the theory, however, evidence that he has gained from other sources, such as the facts that neither by the German Commission nor by Mr. Schotelius in India, nor during the epidemics at Oporto, Glasgow or Naples, has evidence to prove the transmission of plague to man by fleas been found. He says also the facility with which it is possible to arrest an epidemic of plague where hygienic conditions are good and isolation properly carried out speaks against this theory. If Simond's hypothesis were correct, one might almost fold one's arms in consequence of the difficulty of preventing the diffusion of infected fleas. It requires to be demonstrated, not only that fleas pass from rats and mice to man, but from rat to rat. The question can only be solved by conveying to the body of human beings rats and mice fleas that have lived on plague rats. If the experiment is considered necessary he places himself at the disposal of the committee to undergo it.

*The Danysz bacillus for the extermination of rats.*—Only irregular results seem to have been obtained by those who have experimented with cultures of this bacillus during the year. In some cases, death promptly followed, but in many others the animals remained sound. It is certain that the continued transmission of the bacillus from rat to rat causes its virulence for these animals to be greatly attenuated, so that very soon it entirely loses its pathogenic properties for them. It cannot, therefore, be recommended, as now prepared, as a reliable agent for their destruction. It is probable, however, that by feeding rats on large amounts of fresh agar cultures a reduction in their number may be obtained in regions where they greatly abound.

Wiener announces that the virulence of the Danysz bacillus can be enhanced by cultivating it in raw eggs. It is then capable of inducing extensive epizootics among rats. He injects eight or ten drops of a 1 per cent solution of soda into a freshly laid egg and then introduces a loopful of the bacillus culture. The contents of the egg become transformed in the course of eight days to a highly virulent, practically pure culture, killing rats in five to seven days. Other rats fed with the intestines of the dead ones, succumbed even more rapidly. It was impossible to induce infection of fowls and rabbits even with these highly virulent cultures.

Since the destruction of rats is of prime importance in those countries where plague is prevalent, further work along this line is greatly to be desired. In this manner the most favourable conditions for the employment of this organism may be ascertained.

*Curative Plague Serum.*—It is well known that the great expectations hoped for from Yersin's serum have not been realized. The slight curative effect of this serum has been acknowledged also by French authors, and it has been recommended that the serum no longer be subcutaneously but intravenously employed. Lately, however, a more potent serum has been prepared in the Pasteur Institute, which has been used in treating plague patients in South America, Oporto, Alexandria and Cape Town, without, however, any marked results. In India, since the failure of the first and second



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French serum, prepared in Pasteur's Institute, that of Lustig has been used. Reports from the medical authorities at Bombay showed that the serum possesses a marked curative action in the lighter cases of plague. In severe cases no serum as yet has succeeded. Indeed, injections of as much as 3 litres of serum have failed to save the patients.

The Indian Plague Commissioners examined in all two samples of Yersin's serum and two of Lustig's. Yersin's serum, which they obtained from the Pasteur Institute in Paris, had been derived from horses inoculated first with dead and finally with living plague cultures, and had been heated to 60° C. before being sent out. Lustig's serum was prepared for them in Bombay by Dr. Galeotti. The horses which furnished it had been inoculated with a solution of nucleo-albuminous substance obtained by growing mass cultures of *B. pestis* on agar, scraping them off, dissolving them in 1 per cent potassium hydrate, and collecting the precipitate which formed on subsequent acidification.

The commissioners first endeavoured to find experimentally whether the serums contained any specific antibacterial substances. On this point their results were negative. On adding the serum to fresh plague cultures and introducing the mixture into the peritoneal cavity of normal guinea-pigs, 'we saw nothing which reminded us, even in the remotest degree, of the striking results which were obtained when cholera bacteria were introduced into the peritoneal cavity in association with the serum which contains the corresponding specific antibacterial substances.' Again, plague bacteria seemed to find both Yersin's and Lustig's serums excellent culture media. With guinea-pigs inoculated with  $\frac{1}{12}$  agar tube of *B. pestis*, it was found that the simultaneous injection of serum in the opposite side of the body in doses of as much as 2 c.cm. in no case prevented death. Yersin's serum, however, appeared sometimes to prolong life a few days; Lustig's accelerated death. The commissioners then endeavoured to see if the serum contained toxic substances in sufficient quantity to produce a fatal result in normal guinea-pigs. Their experiments showed that when guinea-pigs were injected with as much as 30 c.cm. of Yersin's or Lustig's serum they in every case survived.

As Yersin's serum appeared innocuous in every respect they determined to administer it to hospital patients. They did not feel justified in putting Lustig's to a similar use owing to its disastrous effect on plague-infected guinea-pigs. At the South Camp Hospital, Bangalore, they treated 49 cases, administering the serum to every plague patient admitted who was neither convalescent nor absolutely in *articulo mortis*. The case-mortality of the adjoining North Camp Hospital served as a control. In Bombay, also, they treated 28 cases in the Modi Khana Hospital, selecting every second patient admitted and using the intermediate cases as controls. Both at Bangalore and Bombay the advantages of serum treatment were only slight. The case-mortality showed a diminution of not more than 4 to 5 per cent. Life was not prolonged nor 'convalescence accelerated, nor was there any well-marked alleviation of symptoms.

The commissioners conclude that Yersin's serum, as received from Paris, 'contains therapeutically useful substances in greater or smaller quantity,' but that some samples at all events, are too weak to be of much benefit to plague patients. Speaking of the more favourable experiences recorded by some other observers, they are prepared to admit that 'a certain amount of advantage in all probability accrued to the patients, both in the case of those injected with Yersin's serum, and of those injected with Lustig's serum.' Notwithstanding the disappointing results hitherto obtained, they hold that serum-therapy is 'the only method which holds forth a prospect of ultimate success' in the treatment of plague. They recommend further study, in the case of animals furnishing the serum, of 'the blood changes which are associated with the incorporation of the plague toxins, and with the elaboration of antidotal and bactericidal substances,' and, in the case of human plague subjects, of the blood changes brought about by the administration of the serum. They also advise that therapeutic serums should be prepared in India by Yersin's method, and urge that all serums, with a view to excluding deleterious samples 'should, before they are brought into therapeutic application on man, be exhaustively tested upon animals.'

*Haffkine's preventive plague fluid.*—The literature of the year on this subject continues to refute the objection raised by Calmette that a person in the period of incuba-



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tion for a slight attack of plague would find the disease considerably aggravated if he submitted during this period to a preventive inoculation of Haffkine's fluid; and his assertion that under such circumstances the case would almost certainly end fatally.

On the contrary, more extensive experience, figures and facts teach us that even if you do inoculate a person suffering from plague with Professor Haffkine's prophylactic, you do no harm, and if that person is in the incubating stage, then you do considerable good. Practically it means this: If a case of plague occurs in a household all the members of that household should be inoculated, even if we think some may be and possibly are incubating plague.

The conclusion of the Indian plague commissioners on this subject are summarized as follows:

1. Inoculation sensibly diminishes the incidence of plague attacks, but the protection is not absolute.
2. It diminishes the death rate among the inoculated population; both the rate of attack and the fatality of attacks is diminished. In neither of these two cases can a numerical expression be given for the measure of protection against attack, or the diminution of the death rate.
3. Inoculation does not appear to confer any great degree of protection within the first few days after the inoculation has been performed.
4. It confers a protection which certainly lasts for some considerable number of weeks, and possibly even for some months, but the maximum duration of the protection cannot yet be determined.
5. The varying strength of the vaccine employed has apparently had a great effect upon the results obtained, but the best results of inoculation will only be obtained after an accurate method of standardization has been devised.

*Asiatic Cholera.*—This disease has been present during the year in Arabia, Borneo, Ceylon, China, Dutch India, Egypt, India, Japan, Korea, Palestine, Russia, Philippine Islands, and the Straits Settlements. In China the places affected included the ports of Canton, Hong Kong and Shanghai.

In Arabia the disease began in March last. A report from Constantinople under date of the 27th of that month from S. C. Zavitziano, U. S. Sanitary Commissioner to the Surgeon-General U. S. Public Health Service, states that according to the official sanitary news the number of deaths from cholera in the Hedjaz is 1,129, of which 381 have occurred at Medina, 788 at the holy city of Mecca, 1 at Rebuk, and 38 at Djiddah. Rebuk is a station, a little spot where there is a spring and where the caravans going from Mecca to Medina stop and take the necessary water. It is there that the first case of cholera was registered, and of which the sanitary board was informed.

The great danger was when the pilgrims turned back to their countries, but the necessary steps and the necessary quarantines were ordered in order to prevent the spread of the epidemic. All the attention was given to the pilgrims coming to the countries northward of the Suez Canal—that is, to say, for the pilgrims coming to Turkey and to Russia, the latter pilgrims being obliged to pass through the Bosphorus.

With regard to the origin of this outbreak the report states the first cholera cases which have been observed were on pilgrims coming from Russia, the Cossacks as well as among the takrouris, or workmen, and a soldier. On the contrary, among the Javanese, who remained in Mecca, no one presented any cholera symptoms; on the contrary, those among the Javanese who followed the caravans of Cossacks, stopped with the latter at Rebuk, where they took and drank water, fell ill with cholera symptoms, and that after the Cossacks and some pilgrims from Bukhara presented the same symptoms of cholera.

The deaths at Mecca from this disease only amounted to 31 for the 20th and 21st March together. On March 22nd the figures rose to 220, and on the 23rd to 247. The Haj was more numerously attended than usual this year. This was largely due to the fact that Russia this year, after several years of prohibition, permitted her subjects to undertake the pilgrimage. It is thought that the total number of pilgrims of all nationalities amounted this year to some 250,000. The dispersal of this large number of persons to all parts of the Moslem world of necessity offered considerable risk of the spread of cholera.



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In Egypt the cholera epidemic continues to subside both in respect of numbers and virulence. As a correspondent of the *British Medical Journal* says:—‘The latter is a particularly hopeful sign, as it is a well-known fact that an epidemic is far more fatal in character at its onset than when nearing its close. It is satisfactory to be able to record that the number of Europeans attacked has been very small—fewer than 300 out of the first 35,000 and odd cases. Those who fell victims were chiefly of the servant class, and were attacked, in the main, owing to their own incurable carelessness. One English officer died at Alexandria, at the Mustapha Barracks: in this case infection was definitely traced to a house servant living in a badly infected quarter near Ramleh.

‘The Sanitary Board has conducted a most careful investigation into the cause of the original outbreak at Moucha. The following history has been obtained; it depends, of course, entirely upon native evidence, and the Arab is always anxious to anticipate, if possible, the wishes of his interlocutor, but still there appears to be no reason to believe it substantially inaccurate. Seventeen pilgrims left Moucha for Mecca, and all returned. While at Tor, on the Gulf of Suez, it is stated that one of their number was ill with diarrhoea and vomiting, but was never seen by the native doctor of their section, as he was hidden within the tent, into which the doctor never entered. The other pilgrims say that they stood at the door of the tent, and stated they were all well. The sick man was nursed by a woman who went from Moucha with them. On their return to that village this woman’s child died of diarrhoea, and this was followed by a number of deaths in the omdeh’s (mayor’s) family, one of the members of which had been among the pilgrims. The deaths in this family and its connections, due to severe diarrhoea, were going on throughout June, but were kept quiet. Meanwhile the return pilgrims frequented the mosque in the centre of the village, a mosque of which, as we stated in a previous note, the latrines are in the immediate vicinity of the village well. It is from this well that the earliest cases of the epidemic, which were first notified on July 14, are known to have taken their water. Such is the statement elicited by the Sanitary Department.’

‘The latest reports were that Cairo was free from all but imported cases. The problems to be solved in Alexandria were of far greater complexity and were overcome with much more difficulty. Alexandria is of no nationality; almost all the peoples of the earth find representatives there, each with its own consul and, of course, consular court. Each consul, had, of course, a different remedy for the outbreak, and each race hospital its own system of notification and removal of cases.’

Since however Dr. Graham was sent from Cairo by the Sanitary Department, the improvements he has inaugurated in the purification of the water supply, and the disinfection of the people who had come into contact with cholera cases, have led to a rapid abatement.

On Sept. 15, 1,557 towns, villages and ezbehs throughout Lower and Upper Egypt were affected with cholera. From July 15 to Oct. 10 there were officially reported for all Egypt 38,083 cases of cholera, and 32,377 deaths. But from October 25 until to-day only 225 cases and 212 deaths have occurred in all Egypt.

In Jerusalem cholera is present, 494 deaths from that disease have taken place there this week.

In the Philippines it is estimated that 75,000 cases with nearly 60,000 deaths have occurred since the beginning of the epidemic at the end of March. In some of the towns 10 per cent of the native population have died. Although some of the provinces are still suffering severely, the epidemic is gradually subsiding. A cable report from Gov. Taft, received at Washington, October 30, says that the cholera has practically disappeared from the Island of Luzon, and that in Manila there have been an average of only two cases a day during the last ten days. In all, twenty provinces are now practically free from the cholera. Only five provinces are now seriously affected—the provinces of Iloilo, Occidental Negros, Capiz, Samar and Misamis. The mortality, which in the beginning reached 90 per cent, has been greatly reduced, and is now generally below 50 per cent. Cebu has already been declared a clean port, and Manila will be so declared on November 1.



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The U. S. Army Transport *Sherman* from Manila to San Francisco went into Merivales for quarantine for five days. Between Merivales and Nagasaki cholera developed amongst the passengers. There were thirteen cases, nine of which proved fatal. The vessel remained in quarantine at Nagasaki for five days. There were no new cases on her after leaving Nagasaki.

In Japan the latest advices show that there have been 7,360 cases and 3,060 deaths from cholera.

Among the important cities in which the disease has been present are Osaka, Okayama, Kyoto, Moji, Nagasaki and Kobe, and Hakodate: the last four named are shipping ports; and Okayama is situated about 72 miles from Kobe, and from the prefecture of Okayama much matting and straw braid are exported.

In China the provinces of Hunan and Shansi are most affected. The disease is epidemic at Nanking, which reports 40,000 deaths, at Shoo-Yanghsien, with 3,000 cases a day, and a number of other cities. In Hong Kong, since the beginning of the outbreak, there have been 459 cases and 396 deaths.

*Yellow Fever.*—Much of the observation and of the literature of the year in connection with this disease have been directed to the part played in its dissemination by the mosquito *Stegomyia fasciata*, acting as an intermediate host for the yellow-fever parasite.

In Havana war upon the mosquito has continued to be waged on the lines laid down by Ross, Finlay, Reed, Carroll and Agramonte, as referred to in my last annual report. And the campaign so waged has been most successful. Major Gorgas, M.D., U. S. Army, thus reports in part:

‘Our scheme so far as mosquitoes were concerned, was, in the first place, to destroy all the *Stegomyia* mosquitoes we possibly could, so as to leave as few as possible to transmit the yellow fever from patient to patient. In the next place, to prevent as much as possible those that escaped from biting yellow-fever patients, and thus transmitting the disease. And in the third place, when mosquitoes had escaped our first two lines of defence, to have a third line and endeavour to kill all that had become infected.

‘With the idea of destroying all the mosquitoes possible, we formed a brigade, naming it the *Stegomyia* brigade, which worked within the houses. The *Stegomyia* mosquito breeds principally in the yards of the more thickly settled portions of the city, in all fresh-water collections, such as rain-water barrels. The water supply of Havana is very hard, and nearly every house in the city has a barrel of rain-water for domestic purposes.

‘Early in the season the mayor issued an ordinance requiring every collection of water in the city to be kept mosquito-proof. After one or two inspections this was enforced by fines. Wherever a collection of water was found not protected as required, the owner was fined.

‘The *Stegomyia* brigade is divided into seven sections; each section has a portion of the city assigned to it. The section consists of an inspector and two labourers, who accompany him in his inspections. Every house in his district is visited by this inspector. The inspectors report upon the condition of the water collections as to larvæ, and the manner of their protection. On this report the department acts as to fining the tenant or owner, according as the responsibility rests.

‘The oilers pour crude kerosene oil into all the drains, privies, cess-pools, &c., that cannot be otherwise protected. If the families are poor, the department covers their water barrel and puts a spigot in the bottom. Havana has no general sewerage system, but each house has a cess-pool. Sometimes a cess-pool will have an outlet into some neighbouring drain, or it may not have any outlet at all. All these cess-pools and the drains leading thereto are favourite breeding-places for the common *Culex pungens*, and to a very slight extent for the *Stegomyia*. The only way of managing these is by oiling.’

To prevent the mosquito from becoming infected we have screened, at public expense, every yellow-fever case as it has occurred, having the family designate the room or rooms they want to occupy, and at once putting up wire screens at the doors and windows, and stationing a guard at the door to see that proper precautions are observed to keep the door closed.



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With the object of destroying the infected *Stegomyia* we organized three fumigating brigades of thirteen men each, under the direction of a chief. These at once went to the houses, and as soon as the patients were screened, went to work killing mosquitoes. The screening was generally completed within two hours after the case was reported. Each room in the house outside of those occupied by the patient was closed; the cracks were carefully pasted, and pyrethrum powder was burned at the rate of one pound to every 1,000 cubic feet of air space. At the end of three hours the room was opened, and the mosquitoes were swept up and destroyed. The whole house was gone over in this way, and on the possibility of some of the mosquitoes having escaped, the houses adjoining the infected house were treated in the same way. On an average, 150 pounds of pyrethrum was used to a disinfection.

As soon as the patient had recovered or died, the rooms occupied by him were gone over in the same way and the infected mosquitoes were killed before the screens were taken down.

Pyrethrum is not the best insecticide, but it was used because it was least objectionable to the people being fumigated. Sulphur is very much better, but it injures so many fabrics that we never use it in rooms where any injury can be done. From the stupor caused by the pyrethrum powder a certain number of mosquitoes will revive when exposed to the fresh air, and for this reason, after the fumigation the mosquitoes have to be carefully collected and destroyed in some other way.

The habits of the *Stegomyia* have greatly assisted us; they seem, as a general rule, not to leave the neighbourhood of their birth-place, and for this reason we were able last summer to get all the infected mosquitoes around each focus as it developed by killing the mosquitoes in the way described.

Writing in July last, Dr. Gorgas says: 'In Havana since September 28, 1901, there has not been a single case. The maximum for the same period, according to the table, is 1,385 in 1896-97; the minimum, 122, in 1899-1900; average, 467. These results, it seems to me, are due entirely to the mosquito work.'

In Brazil the position and belief with regard to the mosquito in yellow fever is stated in a letter from H. S. Allyn, M.D., to the 'Medical Record' under date of Aug. 27 last. He writes from Rio de Janeiro and says: 'Until the present time the sanitary authorities of Rio de Janeiro have not made the war on the mosquito one of their methods of combatting yellow fever, and it is only recently that the leading physicians here have accepted the "Havana doctrine," and even now some of the most eminent ones, while accepting the mosquito as *an* agent, do not believe it to be the *only* agent in the spread of yellow fever; and they rigorously defend the idea that the disease is propagated by fomites.'

In Brazil the lawyers argue their cases and fight their legal battles through the daily papers, and the doctors employ the same means to announce their discoveries and teach their doctrines. In yesterday's 'Journal of Commerce,' the oldest and largest daily in Rio, Dr. Nuno de Audrade, for many years natural director of hygiene, and one of Rio's most celebrated physicians, has a long article with the title, 'The Prophylaxis of Yellow Fever,' and as his views may be of interest to the readers of the 'Medical Record,' I will send you a translation of some extracts from it.

He opens with the following just remark: 'The discovery of the transmissibility of yellow fever by *Culex fasciatus*, or *Stegomyia fasciata*, introduces a new element into the prophylaxis of this pestilential disease, and helps to the comprehension of long-known and well-proven facts, which until now were unexplainable.' As one of these heretofore unexplained facts, he relates a personal experience of his in 1883. Contrary to the then generally accepted opinion, that yellow fever was brought into the city from the shipping in the harbour, he acted upon the hypothesis that the shipping was infected from the lands, and to protect the vessels ordered them to anchor not less than 300 metres from the shore, and forbade them to touch the dock. At the time there were no cases either in the city or among the ships, but in the latter half of December cases began to appear in the city, and in the following months the disease became epidemic, but not until April of 1884 did the first case appear in the shipping, and this one was evidently carried from the land. By continuing this course in the following years, the epidemics



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of yellow fever were completely extinguished in a harbour where, in former years, they were so terrible that ships without number had their crews decimated. He then adds: 'To-day more is known than in 1883. The Havana doctrine, confirmed by the studies of Reed, Carroll, Agramonte, and others, and inspired by the persevering observations of Finlay, revealed the agency of the *Stegomyia fasciata* in the transmission of yellow fever; and, as the natural history of mosquitoes teaches us that they are poor travellers, it can be stated positively that the immunity of these vessels, separated from the shore, was due to the distance which the mosquitoes could not traverse.'

Continuing, he says: 'Another fact of great significance speaks equally in support of the Havana doctrine, and, perhaps, with greater brilliancy, than the former. For fifteen years I have witnessed the immunity of thousands of non-immune persons, who during formidable epidemics, have descended daily to Rio from Petropolis, returning at 4 or 5 p.m. Among these I do not know of a single person taking the fever, when the night was not passed here, but, on the other hand, I know many who took it when they imprudently stayed here over night. Now the *Stegomyia* hides itself during the day and begins to fly at dusk. This circumstance explains the well-known immunity of those who ascend to Petropolis. So, too, there are many cases in which yellow-fever patients have been carried to Petropolis, but I do not know a single one who became a *focus* for the spread of the disease. The altitude of Petropolis is not a serious obstacle to the propagation of yellow fever; but the *mosquito-rector*, which sucks the blood of the sick and injects it into the well, *does not exist there.*' (Italics his.)

Petropolis is a mountain city, 2,700 feet above sea-level, about thirty miles north of Rio, and has about 25,000 inhabitants. It is reached by an hour's trip across the bay, and an equal time by rail, the last half of which is up an inclined plane. It is the summer home of the President and many Rio families, and the permanent home of all the foreign legations, and whenever their members have observed the precaution of not passing a night in Rio, they have always escaped; but this week the Chilian fleet has just left Rio with the remains of four ministers and secretaries of that country, who, during the last few years did not observe this well-known law, and died from yellow fever. I am at present living in Petropolis, and I can, from personal observation, confirm Dr. Nuno's statement in regard to the immunity of those who go and come from Rio daily. One remarkable fact in the connection is that one taking the fever in Rio and going to Petropolis, even if the disease does not develop for a day or so, nearly always dies.

But to return to Dr. Nuno's article. He describes the experiments made in Havana, both those to prove the agency of the mosquito in the propagation of the disease and those to prove the innocuousness of families. Of the first he says: 'These experiments are decisive and prove that the *stegomyia* inoculates yellow fever.' He does not, however, accept as final the conclusions of the Americans in the second class, saying, 'They conclude that such objects do not transmit the disease, and *deny the least value to their disinfection.* This statement, however, is not conclusive, because the experiments were not well made. What can be inferred is, that the clothing, bedding, &c., do not transmit the disease *directly* [by direct contact translator], but do not prove that they do not *transport the germ.*'

He outlines his future policy as follows: 'Use all the present methods, and to them add those which have to do with the extermination of *Stegomyia.*' 'Addition and not substitution.'

Dr. Edmond Souchon, of New Orleans, President of the Louisiana State Board of Health, holds, however, that the actual exemption of Havana from yellow fever is truly due to the quarantine work that prevented the introduction of new infection. In a letter to the *Medical Record*, published on the 25th instant, Dr. Souchon says:

'No one admires more than I do the great efforts and the splendid results obtained by Dr. Gorgas in the sanitation of Havana, but as a seeker of truth for truth's sake, and regardless of its consequences, it has occurred to me that although the destruction of the mosquito may have prevented the spread of yellow fever in Havana, the real cause of the *present exemption* of Havana and of the island from yellow fever is due truly to the efficient quarantine work of the United States Public Health and



Marine Hospital Service officers. They kept out the fever and therefore prevented the spread of it by mosquitoes or any other cause. The past history of New Orleans bears out this view. Up to the time of the incipency of scientific quarantine, from 1879 to 1884, there was yellow fever in New Orleans every year, more or less, because the quarantine methods employed up to that time permitted the constant introduction of cases by vessels without ever giving the city a chance of exhausting one infection before another infection occurred. Since the inauguration of thorough disinfection of vessels, especially since 1884, under the vigorous championship of our Dr. Joseph Holt, the city has been practically free from yellow fever until the infection of 1897, through the Mississippi coast. It took three years for this infection to exhaust itself, and New Orleans is again free from yellow fever. All that was accomplished without any precautions whatever having been taken against mosquitoes.

‘Now it is my firm belief that the same thing has taken place in Havana, through the agency of a perfect quarantine, which has prevented the annual infection of the city and gave the infection a chance to exhaust itself. This view is corroborated by the fact that at the ports of Mantanzas, Nuevitas, Cienfuegos and Santiago, where the officers of the United States Public Health and Marine Hospital Service kept up a rigid quarantine since the occupation of the island, no yellow fever has developed *this year* any more than in Havana, and yet no *serious* crusade was undertaken at these places against the mosquito.

‘I reassert here my thorough belief in the transmission of yellow fever by mosquitoes, as demonstrated by the memorable labours of Dr. Walter Reed, his co-workers and followers, but I believe from practical facts before me that there is some other means of transmission.

‘I do not wish to be understood that I believe the work of eliminating mosquitoes useless, because I do believe that it *hastened the exhausting of the infection*, but I do believe that Havana would have become free of yellow fever anyhow, and that the *actual exemption* is truly due to the quarantine work that prevented the introduction of new infection.

‘I do not believe that it would be safe to do away with all quarantine restrictions and rely solely upon the destruction of mosquitoes in a port to prevent that port from becoming infected. There have been mosquitoes in Havana this summer. I know from private information received, and if no cases of yellow fever occurred it is because the efficient quarantine has kept yellow fever out.’

At the conference of State and Provincial Boards of Health of North America, held at New Haven, Conn., on the 28th and 29th instant, Major W. C. Gorgas presented the following resolution as the report of the committee on yellow fever resolutions, signed by Drs. Gorgas, Ross and Glennan :

‘Resolved, That in view of the establishment of the fact that yellow fever is only transmitted by the mosquito, this conference is of the opinion that there is no longer necessity for the disinfection in yellow fever cases of clothing, bedding, fabrics, or effects of any kind, but simply to take measures looking to the control of the sick and the extermination of infected mosquitoes. In cases where non-immunes have been exposed to infection, they should be observed during the period of incubation.’

Dr. J. S. Stephens, Natchitoches, La., representing Dr. Arthur Nolte, of the Louisiana State Board of Health, submitted a minority report to the effect that the mosquito was not the only mode of transmission of yellow fever, he and his confrères believing that fomites carry the disease. The experience in the past had been extensive in that regard. Believing, therefore, that both the mosquitoes and fomites were modes of transmission of the disease, in Louisiana, the same quarantine was maintained to-day that was carried out years ago, with slight modification.

After a spirited discussion, participated in by several members of the conference, Dr. John S. Fulton, Baltimore, moved that both the majority and minority reports be spread on the proceedings, but that the conference not commit itself to any expression concerning the practical measures to be used in restricting yellow fever. This motion was adopted.’

Four cases of yellow fever came to your [St.] John, N.B., quarantine station during the year.



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*Small-pox.*—This disease has prevailed extensively throughout the year, appearing in Argentine, Austria-Hungary, Barbados, Belgium, Brazil, Canada, Ceylon, China, Columbia, Dutch West Indies, Ecuador, Egypt, England, France, Gibraltar, Greece, India, Ireland, Italy, Japan, Malta, Mexico, Netherlands, Philippine Islands, Porto Rico, Russia, Scotland, Spain, Straits Settlements, Switzerland, Turkey, the United States, Uruguay and Venezuela.

During the year the widespread epidemic of this disease in the United States has continued, some 36,000 cases being reported for the first six months of 1902, and some 11,000 from July 1 to 24 instant. In London the disease prevailed extensively also, costing the community about 1,500 lives, and causing serious suffering to some 7,500 other persons, in addition to the pecuniary loss occasioned by the scare.

The ground had been prepared, and only the seed was needed to cause quick germination and a fruitful crop. The neglect of vaccination in the United States, and the abolition of compulsory vaccination in Great Britain, supplied the conditions necessary to the origin and spread of small-pox. In both countries the long freedom from extended epidemics had served to give the people an unwarranted confidence, and to lull them into a false security, and vaccination had come to be regarded as superfluous.

Small-pox has continued to threaten us throughout the year, on the Atlantic and Pacific seaboard and from the neighbouring republic along our frontier. Its continued presence in the United States has necessitated the maintenance of frontier medical inspectors and guards at those of your unorganized inland quarantines where the threatening seemed the most serious from time to time. In addition to this there have been repeated outbreaks of the disease in different parts of the North-west Territories, the sanitary administration of which territories has come under your jurisdiction in this matter. Dr. James Patterson has continued in local charge, and it is in great part due to his well considered precautions, and prompt and energetic measures that the various outbreaks have been limited and controlled.

Small-pox has been brought to the following amongst your organized maritime quarantines; Charlottetown, P.E.I., four cases were brought by three vessels; at Halifax, N.S., five cases by two vessels; Sydney, C.B., one case from one vessel, St. John, N.B., six cases from three vessels; Grosse Isle, Que., three cases from three vessels; William Head, B.C., four cases from three vessels.

These cases, the vessels bringing them, and the persons and effects in such vessels were promptly and intelligently treated with the appliances with which your stations were equipped.

In not a single instance during the year has any infectious disease been transmitted from one to another in quarantine. Nor did any quarantinable disease gain an entrance in the country through any one of your organized maritime quarantine stations.

*Government control of vaccines, &c.*—In connection with the recommendation submitted in my last annual report that a laboratory be created for the preparation of national vaccine and therapeutic sera as in Germany and Switzerland, it is of interest to note that in Great Britain at the annual meeting of the Hospital Saturday Fund (an institution which collects money for the metropolitan hospitals on a certain Saturday every year, and last year collected \$100,000) Dr. T. D. Acland made an important statement based on his seven years' experience as medical officer to the Royal Commission on Vaccination. More than 6,500,000 vaccinations were brought under the notice of the commission and in these serious injury occurred in one case in 14,159 primary vaccinations. But more than half of these were due to preventable causes, namely, the various kinds of inflammation. Having given facts and statistics to show the protective power of vaccination against small-pox, he advocated arrangements by the government for an adequate supply of lymph of the best quality. A motion was carried that 'the government should establish a laboratory fitted in the most perfect manner, adequate to supply all practitioners throughout the United Kingdom with vaccine lymph; and that they should inspect all establishments for the preparation of lymph in this country and regulate the sale of all that is imported,' and in the United States Senator Spooner recently introduced a bill into Congress to regulate the sale of vaccines and therapeutic sera in the Dis-



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trict of Columbia, and to regulate the interstate traffic in the same, the intention of which is to place the manufacture and sale of all such agents under the direct control of the National Government as represented by the officers of the Public Health and Marine Hospital Service. The following is a summary of the bill as published in the *Times* :—

‘It penalizes by fine or imprisonment, or both, in the discretion of the court, the taking from one state to another, or the sale, barter, or exchange of any virus, therapeutic serum, toxin, antitoxin, or analogous product for use in the treatment of diseases in human beings, unless the same is produced at an establishment operating under license from the Treasury Department. Every package of such organic preparation which may be legally taken from one state or territory to another for sale or use shall bear the name, address, and license number of its maker, and the date at which it may be expected to lose its therapeutic value. Establishments working under license from the Treasury Department are to be at all reasonable times open to inspection by its authorized representatives or agents. The action of the Secretary in granting or revoking licenses for the domestic production of such preparations shall be taken on the recommendation of the Supervising Surgeon-General of the Marine Hospital and Public Health Service, and none of foreign production shall be received into the country unless the foreign producers shall permit the same inspection of their establishments as is provided in the case of licensed manufacturers in this country.’

*Beri-beri*.—The question of the causation of this peripheral neuritis has been the subject of some further discussion this year. In the reports of sick for January and February, 1902, recently received at the Surgeon-General's office, Washington, D.C., from the prison and beri-beri hospital at Lingayen, Pangasinan, P. I., Captain Harry A. Littlefield, asst.-surgeon, U. S. Vols., has the following interesting note on the causation of beri-beri: Since the establishment of this prison until February 1 of this year, the native prisoners have been supplied with Chinese white rice. During this time beri-beri has been markedly endemic in the prison. The records of this office show that the number of deaths have averaged five monthly, while the number of new cases monthly averaged twenty. When prisoners reported sick with beri-beri they were removed from the prison to a building about one-half mile from the prison, the upper story of the building being used for a hospital. The difference between conditions existing at the beri-beri hospital and the prison being only the higher elevation of the former; the diet supply was the same at both places. Many of the cases at the beri-beri hospital continued to grow worse and died. The majority of those who did recover, did so after a very long illness and many of them suffered from numerous relapses. During the month of January there were thirty-five cases in the beri-beri hospital and as many who were slightly affected in the prison. The sanitary conditions were excellent. In the civil prison, not more than one-quarter of a mile distant, there were confined a large number of natives, the sanitary conditions not as satisfactory as those of the military prison, they were more crowded, in poorer buildings and not in the open air any more than the natives confined in the military prison. In this civil prison there were no beri-beri cases, the only difference existing in favour of the civil prison being that the ration was purchased in the open market. At the beginning of February of this year, upon recommendation of the prison surgeon, the use of the Chinese white rice supplied by the commissary was discontinued and native rice from the open market purchased in its place. Since that time no new cases of beri-beri have developed and no death has occurred. Of the 29 cases remaining in hospital on the last of January, 16 have been returned to duty; 8 released, greatly improved; 5 remaining, greatly improved and still improving. The mild cases in the prison have all recovered. This marked change occurred in the space of one month, the only apparent difference existing during this period and in the previous times being that of the rice supply. From these facts it would seem that the cause of beri-beri in this prison has been brought about by the use of the Chinese rice, white variety.

Manson writes :—‘There are two theories of its causation: The dietetic which has been advocated by many writers, who generally attribute the disease to prolonged and uniform rice diet. The facts that support this are largely from Japanese experience, but epidemics elsewhere show exceptions. It has occurred in other countries with elaborate



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diet, where there is no lack of nitrogenous food. In the prisoners of the Dutch colony of Java, there seems to be some evidence that it follows the use of decorticated rather than non-decorticated rice. Another theory which Manson thinks more plausible is the germ theory, which is quite compatible with Japanese experience, and that the disorder has its origin in the toxin elaborated by a germ in the blood or tissues. In his opinion, the best supported theory by facts is that the disease is purely an intoxication produced by toxins elaborated by germs whose nidus is located outside the human body, and he parallels it with alcoholism. The cause can be transplanted from place to place and therefore can not be of climatic or meteorological nature, and when so transplanted can multiply. This has been shown by numerous facts, by the transportation of Japanese to different localities where they have carried the disease with them, and it is not unknown on ships in the London docks. We can not, however, say what the toxin is, but its persistency in certain buildings and ships is certainly remarkable. The analogy with alcoholism is used by him largely in his reasoning. In conclusion, he enumerates several points that investigators in the etiology of beri-beri must be careful to attend to: '1. The diagnosis: they must avoid mistaking other forms of peripheral neuritis for that of beri-beri. 2. They must bear in mind the possibility that the disease may not have been contracted at the place in which it is declared. 3. That the toxin which produces an outbreak of beri-beri may have been imported as such and not manufactured, so to speak, locally. 4. They must carefully differentiate between predisposing or favouring conditions, such as overcrowding, heat and moisture, bad food, &c., and the actual direct cause. 5. Finally, they must recognize that the actual cause must correspond in its geographical distribution with the geographical distribution of the disease.'

Sambon writes (*London School of Tropical Medicine*):—'Certainly, I do not think that rice causes beri-beri because of its deficiency in mineral and nitrogenous matters, but I am quite prepared to admit that it may be related to beri-beri in the same way as we now believe pellagra to be related to maize, or, in other words, that rice may become a vehicle of the beri-beri infection. Rice is used as a staple food over a far wider area than that in which beri-beri prevails, but the cause of the disease is not the rice itself, but perhaps some micro-organism which, in certain places and under certain conditions, may be associated with rice and possibly with other grain.

'Within the endemic centres of beri-beri it has been frequently noticed that the disease is most common in communities supplied with rice of inferior quality, or with rice which has been carelessly prepared and badly stored. Paddy keeps sound for years but the grain deprived of its pericarp is soon damaged by vegetable parasites. Dr. C. Eijkman, from statistics applying to 280,000 prisoners, showed that in the prisoners of Java the proportion of beri-beri cases is 1 to 39 in convicts fed on decorticated rice (white rice), whilst it is 1 to 10,000 in convicts who consume the grain half peeled, that is to say, deprived of pericarp but still inclosed in its perisperm (red rice).

'Besides fungi, there are numerous insects and mites that live on stored rice, and the granaries are constantly visited by mice and rats. Most interesting associations have been established between all these plants and animals that gather on rice. For instance, *Pintus latro* is a small beetle that feeds on rice in winter, its larva inhabits the excrements of rats. If rats were liable to beri-beri, as Lacerda suspected, the specific microbe might be conveyed in their excreta. I mention these facts merely to show how complex might be the connection between rice and beri-beri'.

'Dr. W. A. Wheeler, Civil Surgeon in charge of the Boer Camp in St. Helena, has described his experiences of the epidemic of this disease which occurred among the Boers there. The facts, as he believes, fully agree with Dr. Manson's theory as to the production of the disease by place infection.

'At first only a few isolated cases of beri-beri occurred in the camp at Dead Wood Plain, but at the time of his arrival there in May, 1902, the disease had become epidemic, and a new isolation camp was established, of which he had command, and in which he had on an average 75 cases to treat.'

'In regard to etiology, Dr. Wheeler believes that all the causes ordinarily ascribed might be eliminated. As far as alcoholism was concerned, the Boers were well known to be a temperate race, and as prisoners of war they had no possible means of obtaining



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alcoholic drinks, and every man returning to camp after leave of absence was strictly searched. Rice was at no time issued as part of the rations. Arsenic was carefully tested for in the drinking water with a negative result, and if any had been present in tinned foods the home troops would have suffered equally, as the rations for soldiers and Boers were identical. Malaria was ordinarily unknown in St. Helena, and although it was common in some parts of South Africa, yet careful questioning of each patient in no case elicited a history of this disease.'

'On the other hand, the conditions existing among the Boers would lend great countenance to the theory of place infection, resulting in the development of a toxin outside the body. The Boers had been confined to one camp of 3,000 men for over two years. The greatest care was taken as regards drainage, latrines, removal of night soil, &c.; but, even so, the ground could not possibly have escaped being fouled during this long time. Again, the large majority of those attacked were old men (50 to 70), men who in their own country had been accustomed to a free active life, but who now, as prisoners, moped, took no exercise, ate and slept too much, and stayed mostly day and night in small huts with every aperture closed. They never washed their bodies and never changed their clothes. Conditions such as these, in conjunction with fouled ground, would naturally bring about a state of affairs favourable to the production of a toxin. The mosquito could be eliminated in this case, for the camp was at an elevation of 2,000 ft., and a strong sea breeze was constantly blowing. Dr. Wheeler had never seen a mosquito there, but vermin of other kinds were there in plenty.

'The theory of place infection was also strongly borne out by the fact that, on moving the invalids to a site hitherto unoccupied, a most rapid and marvellous improvement took place. The earlier cases had been sent to Jamestown Station Hospital (at sea level), and a fair number of these died; but, after the establishment of the isolation camp at Dead Wood Plain, there was not a single death; every man recovered completely, some in a week or so, others more slowly.

The treatment consisted solely in this change of location and in giving extra diet—1 tin of milk, 2 oz. of oatmeal, and 3 oz. of whisky to each man.

'As regards the ordinary diet, it was at no time deficient, and was identical with that of the home troops (encamped on the same ground)—namely, fresh meat four days a week, tinned meat two days, vegetables and potatoes on alternate days, bread, sugar and coffee. It is true the vegetables were compressed, and the potatoes were often not too good.

'During a residence of six years in tea districts in India I have naturally seen a large number of cases of the disease known there as beri-beri, and of malaria in all its forms. I have also as a visitor seen the form of beri-beri common in Singapore; but this epidemic in St. Helena has exhibited features very different from those in the other countries. The acuteness of the cases, the rapid recovery on removal to fresh ground, the absence of all factors hitherto considered causative, with the notable exception of that of fouled ground and personal uncleanliness, is most remarkable.'

Cases of beri-beri were brought to the port of Sydney, C. B., during the year, and to the port of Victoria, B.C.

*Scarlet Fever Serum.*—*The British Medical Journal* of the 4th inst. speaks thus of a new serum for scarlet fever:—

'At the Congress of Naturalists and Physicians, recently held at Carlsbad, it was announced that Dr. Paul Moser, Assistant Physician to St. Anne's Hospital for children in Vienna, had discovered a curative serum for scarlet fever. The serum is obtained by injecting horses with the products of cultures of streptococci which Dr. Moser has found in the blood of 63 out of 99 children who had died from the disease. It has been produced in quantity in the Serotherapeutic Institute of the Rudolph Hospital in Vienna, under the superintendence of Dr. Paltauf, Professor of Pathology in the University of Vienna. It has been used clinically since November, 1900, in about 84 cases, with the result that the mortality among 400 cases of the disease in St. Anne's Hospital has been reduced by one-half. Only the more severe of the cases in the hospital were treated



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with the serum on account of the difficulty in obtaining a sufficient supply. All the children who were treated within three days of infection recovered. Their general condition underwent a striking and rapid improvement, and the pyrexia in many cases quickly abated. So far the serum has not been produced in a concentrated form, so that a comparatively large quantity has been injected into each patient. In some cases erythematous eruptions developed, but they soon disappeared. Professor Paltauf and Professor Escherich, Director of the St. Anne's Children's Hospital, testify to the good results obtained with it, both in the case of children and adults, and orders have been given by the Austrian Minister of the Interior for the serum to be prepared in large quantities for distribution to all the Vienna hospitals, and the Congress was informed that the government would vote a considerable sum for the purpose. An antistreptococcus serum has previously been employed in severe cases of scarlet fever, notably by Professor Baginsky, of Berlin, but without any really satisfactory results. We have not as yet had an opportunity of seeing the full text of Dr. Moser's paper, which will be worthy of careful study.'

*Enteric Fever.*—In an article on the value of anti-enteric fever inoculations, under date the 20th ultimo, the *Medical Record* says:—, Surgeon-Major Wright of the Army Medical School at Netley has recently made an exhaustive report on the results of anti-typhoid inoculations in South Africa. The medical officers urged at the beginning of the war that the opportunity be given to make extensive tests of the efficacy of the typhoid serum, but Lord Wolseley for a long time refused to permit inoculations, and it was only at the urgent solicitation of Lord Lister that he finally gave a grudging consent.

'Professor Wright says the success of the inoculations was unmistakable, for both the morbidity and the mortality were much less among the inoculated than among those who had refused to submit to the experiment. In proof of this claim he adduces the statistics of the garrison at Ladysmith. According to the summary of the report cabled to *The Sun*, of the 12,234 composing the garrison there, all of whom were exposed equally to typhoid infection, 1,705 submitted themselves to inoculation. In the period from November 2, 1899, until February 2, 1900, there were 1,489 cases of typhoid among those who had not been inoculated, and only thirty-five among those who had been inoculated, instead of about 250, which would have been their due proportion. There were eight deaths among those who had been inoculated to 329 among those who had not been inoculated. The death rates of the two groups were respectively .047 and .312. As a result of the diminished mortality, superadded to the diminution of incidence of the fever, is claimed that the reduction of mortality from typhoid amounted to a fourfold reduction.

'These statistics are, doubtless, comforting and cause the hope that the mortality from this scourge of armies may be reduced, but it must be remembered that the experiments cited were made upon soldiers in garrison and not on the march. Men who are marching under a burning sun in a hot and dry country will drink any water they see, no matter how polluted it seems to be or is, and not even military discipline will make them cherish their thirst for the twenty or thirty minutes needed to boil the water so as to make it safe. And again, even in garrison, the men who had enough faith in medical science to submit to a protective inoculation would also be much less disposed to disobey the sanitary injunctions laid upon them than would the careless or sceptical uninoculated.'

'Still the statistics that have thus far been presented go far to sustain belief in the efficacy of protective inoculation against typhoid fever as practised by the English military surgeons and they more than justify continuance of the practice.

'*Eberth's bacilli in typhoid expectorations*—L. Jehle reports (*Wein. Klin. Wochenschr.*, February 27, 1902, No. 9, p. 232) the results of his researches upon the presence of typhoid bacilli in the expectoration of patients, as well as in the bronchial secretions found on examination after death. The expectorations and bronchial secretions were examined under the microscope, then cultivated, and the diagnosis was completed by using the serum reaction.



In 15 cases in which the bacilli were looked for in the expectorations, the result was positive 9 times. In all these cases typhoid was complicated by bronchitis or broncho-pneumonia. The typhoid bacilli existed in pure culture in 2 cases, in 4 cases they existed very numerous, in 2 cases they were associated with the influenza bacilli, and in 1 case with diplococci and streptococci.

The results of the examination of the bronchial mucous were as follows : In 5 cases in which there existed hæmorrhagic infiltration of the lungs the typhoid bacilli were found 4 times. In 6 cases with simply a congested condition of the lung tissue the presence of typhoid bacilli was proved 4 times. The typhoid bacilli were also present in 3 other cases which were clinically abnormal.

The author concludes from these facts that, if Eberth's bacilli are found in the expectorations and bronchial secretions in cases of pneumonia or broncho-pneumonia, their presence implies that the person is suffering from typhoid fever. They are present also, but not so constantly, in the expectoration of typhoid patients afflicted with simple bronchitis.

*Leprosy* :—At the Royal Medical and Chirurgical Society Mr. Jonathan Hutchinson made a communication on this subject based on the experiences gained in his recent tour in South Africa. Among other conclusions Mr. Hutchinson has arrived at the following :—

'1. Leprosy was almost, if not absolutely unknown in South Africa before the Dutch occupation of the Cape, and their introduction of Malays from Java to establish a fish factory at Cape Town.

'2. Salt fish and rice was the staple food of the Dutch farmers and their Hottentot slaves at the time leprosy was first observed, in 1756. The disease first spread around Cape Town, then over South Africa.

'3. Leprosy prevails slightly in towns (unlike highly infectious maladies) but affects chiefly agricultural labourers. Though widely spread the disease is unequally distributed—dotted about among the mining and agricultural population of Cape Colony, who use very largely badly cured salt fish.

'4. In the Kaffir kraals of Natal, the disease is communicated from person to person by eating food from a leper's hands contaminated by food containing the bacillus.

The disease is not contagious in the ordinary sense of the term, but only in this special manner, which Mr. Hutchinson proposes to call 'commensal communication.' He thinks that the two hypotheses of fish production and commensal communication together explain the difficulties hitherto felt in regard to leprosy, such as its not spreading in civilized communities, its irregularity and uncertainty even among the most careless, the frequency with which young children suffered, the universal, but varying disproportion of the sexes, and the scattered distribution without, as in South Africa, any foci of great prevalence. The facts in favour of the view that the bacillus is received through the stomach are very strong. The first symptoms are those of a blood disease, There is never a primary sore or other indication of local infection. The earliest phenomena, whether of the skin or nervous system, are, as a rule, bilateral and imply blood communication. It is impossible to believe in communication by the breath, for attendants in leper houses and others in constant and close communication with lepers never take the disease. Similarly, contagion through the skin is incredible. Husband and wife rarely suffer together ; many inoculation experiments have failed. Such contamination of food as described could only occur under conditions of extreme carelessness in feeding. Hence among the cleanly communities of Europe and America, the disease was not communicated.

The measures suggested for the prevention of the disease are first (and by far the most important) the legislative control of the fish-curing establishments ; secondly, the diffusion of information as to danger of communication ; and thirdly, the establishment of small isolation homes into which lepers should be induced to go during the stage involving risk. Thus Mr. Hutchinson, as the result of his investigations, reaffirms the 'fish-hypothesis' of the origin of leprosy—a doctrine which he has strenuously and persistently maintained for many years in the face of almost universal opposition of all the



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other authorities. He has also, against the general view, insisted that leprosy is not in the ordinary sense a contagious disease, pointing out that although a number of lepers live in England and mix freely with the population, no case of contagion has ever been observed. The peculiar method of contagion from lepers through food is a new hypothesis, but it in no way invalidates (on the contrary, it confirms) Mr. Hutchinson's view of the non-contagiousness of leprosy in civilized life.

Ernest F. Neve stated that it has been shown that thousands of people have eaten fish in various forms without developing leprosy, which is rarest in the districts of greatest fish consumption. The question of the spread of leprosy is one of great importance in those countries in which the disease is endemic. If acceptance of the fish hypothesis leads us to deal with the matter by aiming alone at the inhibition of unwholesome fish food, then it appears a mischievous theory. If the disease is to be stamped out the most important measures to be taken are: first, to separate healthy children from their leprous parents as soon as possible; to withdraw lepers from the general community as completely as possible; to use such proper sanitary precautions as shall prevent possible infection or contagion; such, for instance as disinfecting dirty clothing by heat before washing, forbidding expectoration on floors or ground, exercising careful supervision over the free ventilation, exposure to sunlight and general cleanliness of the buildings, inside and out, and of their surroundings, and of the disposal of dangerous refuse. It is important to regulate the contact of healthy attendants with lepers, bearing in mind the dangers from their clothing and discharges. The disease should be treated as no less infectious than tuberculosis, to which it presents not a few points of resemblance.

Here is what Dr. Roberto Aguero, the physician in charge of the lazaretto Cano de Loro, Bolivar, near Carthagena and Commissioner on Leprosy of the Minister of State, United States of Colombia, has to say on the subject of contagion of leprosy. There are 30,000 lepers in Dr. Aguero's country:—

‘If leprosy is a disease of infectious nature, there is no doubt that it is contagious, and this is the opinion which I profess, as an expression of conviction derived from observation, from study, and from the careful investigation of the personal leprous antecedents. My opinion is that leprosy is contagious, but not in the same degree as diseases of such active virulence as the eruptive fevers, typhoid fever, cholera, tuberculosis; and I believe that for the contagion to take place there is necessary a contact which facilitates the entrance into the healthy organism of Hansen's bacillus, or its toxins—be it through the mucous passage, or through erosions of the skin, which offer an easy access to the infection. In the first instance it takes place directly from the sick to the well, by the intimacy of life, by prolonged contacts, by the community of domestic utensils, without proper precautions of asepsis, or by the constant intercourse between sick and well.

‘When a healthy individual for a long period holds intercourse with a diseased one, an occasion for infection readily presents itself either because the healthy person makes use of the bowl, of the spoon, or any other utensil used by the diseased person, or because he puts his lacerated skin into contact with that of the diseased one, or some of his secretions, offering thus the occasion for the infectious principle to effect an entrance. Hence the case, a very frequent one, of individuals who have lived many years with lepers, and have remained immune, while there exists also the opposite—one single contact, for a short moment, has been sufficient for the infection to take place, and the contagion to become manifest. I want to say this, that the moment is a single one, and that when it presents itself a natural law is necessarily accomplished, just as a grain sprouts when it is placed under conditions required by the biological laws of its evolution.’

The report of a commission of surgeons of the Marine Hospital Service, appointed to investigate the origin and prevalence of leprosy in the United States, has recently been transmitted to Congress. The report shows 278 cases of leprosy in the United States, distributed by states as follows: Alabama, 1; California, 24; Florida, 24; Georgia, 1; Illinois, 5; Iowa, 1; Louisiana, 155; Maryland, 1; Massachusetts, 2; Minnesota, 20; Mississippi, 5; Missouri, 5; Montana, 1; Nevada, 1; New York, 7;



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North Dakota, 16 ; Oregon, 1 ; Pennsylvania, 1 ; South Dakota, 1 ; Texas, 3 ; Wisconsin, 3.

Of the total number, 176 are males and 102 are females ; 145 American born, 120 foreign born, and the remainder of undetermined nativity. It was stated to the commission that 186 of the cases were contracted in the United States, but the opinion is expressed by the commission that this number is too large, and that some of these cases were brought from abroad.

The following are the salient features of a bill to control the spread of leprosy, introduced in the United States Legislature by Senator Platt, of New York, this year:—

‘The appointment of a leprosy commission, to reside at New York or San Francisco, to get a yearly salary of \$5,000.

‘The setting aside of a mile square for a national leper home, the site to be chosen by a leprosy board.’

‘The appropriation of \$50,000 to erect suitable buildings for the habitation of lepers in the United States, not including Hawaii, Porto Rico, Cuba or the Philippines.

‘The transportation of lepers who are unable to care for themselves to the National Leper Home.

‘The injunction of steamship companies or individual vessels or railroads to bring to the United States any leper, or to accept any immigrant from any of the countries known to be leprous without a special certificate.

‘The strict supervision for seven years of immigrants of leprous families, though they themselves be free of the disease.

‘The deportation of any leper, who, despite all precautions, manages to enter the United States. No discrimination to be made in behalf of Americans who contract the disease in a foreign country.

‘The Public Health and Marine Hospital Service of the Treasury Department to have full charge of the National Leper Home.

‘This bill should have the effect of checking the spread of leprosy in that country. With regard to the contagiousness of leprosy opinions differ ; some believe that it is contagious in a high degree, while others hold that the disease can only be communicated under certain conditions.

‘However, in the case of a malady so loathsome as leprosy, it is better to err on the side of caution than by any laxness to run even a risk of disseminating its genus.

‘Strict segregation is generally believed to be the only effectual way of restricting the scope of leprosy, so that an appropriation of \$50,000 for this purpose would be money well spent.’

‘The contagion is not common and general as in small pox, scarlatina, measles, &c., because those diseases need no initial local lesions ; the whole organism is their theatre, and they find it prepared ; for this reason the individuals who escape them are rare. In leprosy the local lesion is indispensable, and as it is only rarely produced in the required condition, contagion is rare, is the exception ; and exceptional though it is, it inspires more horror than that of any other disease.’

*Tuberculosis.* Referring to what I had the honour to submit in my last annual report as to the considerations which have prevented my recommending that tuberculosis be included amongst the quarantinable diseases, I may now quote the resolutions passed by the New York Academy of Medicine in February last, in protest against the orders of the United States Government for the exclusion of tuberculous aliens :—

Whereas, the Treasury Department of the United States, upon recommendation of the Surgeon-General of the Marine-Hospital Service, has recently decided to classify pulmonary tuberculosis with dangerous contagious diseases, be it

‘Resolved, That the New York Academy of Medicine deeply deplores this decision, which is not based either on clinical experience or on scientific experiments.

‘Resolved, That the Academy considers the exclusion of non-pauper tuberculous immigrants and consumptive aliens visiting our shores unwise, inhumane, and contrary to the dictates of justice.



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‘Be it further resolved, That, while the Academy is convinced of the communicability of tuberculosis and urges all possible precaution against the spread of the disease occasioned by sputum and tuberculous food, the Academy is opposed to all measures by which needless hardship is imposed upon the consumptive individual, his family and his physician.’

A despatch to *The Sun* states that Professor Brouardel, who returned to Paris last week from attendance at the International Congress on Tuberculosis in Berlin, says that Koch no longer denies the possibility of the communication of bovine tuberculosis to human beings. Koch also admitted, he says, that milk infected with the disease might be injurious. Some time ago Professor Koch began to recede from the position taken at the London Congress, and resigned the claim of being the only discoverer and originator of the theory of the plurality of tuberculosis. To a reporter of the *Paris Figaro* he said: ‘The opinion which I defended at the congress in London I still adhere to. I would like to call attention to the fact, however, that I limited myself to the expression of a theory which had previously been advanced by American men of science. The public has voluntarily accorded me the privilege of parentage. But let us get down to facts: I never said that infection was impossible; all I contended was, that it could hardly have serious consequences.’

The array of well-known authorities who hold that bovine consumption can be communicated to man, and that the ingestion of milk from cows with tuberculous udders may convey tuberculosis to those who drink it, should be sufficient to warn the public that there is danger from this source, which needs to be carefully guarded against.

In a work on tuberculosis just published in Berlin Professor Behring details the results of six years’ investigations at Marburg, where he was assisted by Drs. Ruppel and Boemer.

Professor Behring affirms that tuberculosis in man and cattle is propagated by identical bacilli, and that the seeming differences between the human and the cattle bacilli result from the capacity of the bacilli to accommodate themselves to the organism in which they live. The writer explains the process by which he reaches the conclusion that, chemically and physiologically, the tubercle bacilli in man and cattle are of the same species.

Professor Behring says he has successfully infected cattle with virus from human beings, producing thereby fatal animal tuberculosis. He also says he has discovered a method to render cattle immune against tuberculosis, which is done by vaccinating the cattle when they are young. This he declares to be his greatest discovery, and says the method is in use on farms at Marburg. He alluded to his method of inoculating cattle in his speech at Stockholm, when he was awarded one of the Nobel prizes.

*Railway and Steamboat Sanitation.*—Very much has been written and urged for years by sanitarians to endeavour to improve the hygienic conditions of travel. This year some progress may be observed. The *Journal* says:—

According to a Berlin despatch, the Prussian state railway authorities are taking special precaution against the spread of contagion by public conveyances under their charge. They even propose to go so far as to have a physician accompany through trains and the station masters are to furnish him with detailed reports of typhoid cases, &c., occurring in their town or any suspicions of such. Sterilized water tanks are to be put up and conspicuously labelled and fresh boiled water supplied. All precautions against infection are to be employed about the stations, which will be practically quarantine stations. All this is said to be on account of the spread of typhoid, but it is to be presumed other infections will not be disregarded. Any person who travels and who has even an ordinary eye to sanitary defects can see many opportunities for mischief in railway carriages, and it is said that aside from the spitting nuisance, matters are worse in European travel than in this country. One probable good effect of the public scare as to tuberculosis, &c., which has not yet reached its climax, will be to improve matters, and it is even possible that the expectorating nuisance may be put down. The important point is that the right thing be done; it is too much to expect that only this will be



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attended to; there will undoubtedly be many mistakes. If we can feel that decent disinfection, comparative cleanliness and just, reasonable and practicable precautions against infectious disease are the rule, and spitting is suppressed, we can trust to our vital resistance for the rest of our travel with comparative comfort.

A propos to the above it may be added that the Russian bureau of railways has also published rules in regard to travellers, requiring all cases of infectious disease on railroad trains to be at once removed and put in charge of the police at the nearest station where medical care can be given. Any car in which a case of small-pox, scarlet fever, diphtheria, typhoid or dysentery has occurred must be detached and disinfected. In case of other infectious disorders the question of disinfection, &c., is left to the judgment of the medical official.

The *Journal* in its editorial remarks on this subject says:—

‘The railroad car, which is inhabited for hours or days by numbers of individuals, and going from one place to another at longer or shorter distances, may readily be a means of spreading infectious diseases from one person to others and from one locality to more or less remote ones. In the ordinary sleeping car, which is supposed to furnish the traveller with every possible comfort, many conditions could not be better for collecting and harbouring infectious germs if they had been planned expressly for the purpose. The upholstery which might be of leather, is usually plush, and the woodwork is often made to furnish as many places for the collection of dust as possible.

‘From a hygienic point of view, the upholstery and hangings should be as limited as possible, and of such a nature as can be readily renovated; the woodwork should be smooth and without decorations or sharp angles for the collection of dust; provision should be made for ventilation without the necessity of a cloud of smoke and dust being blown through the car; and the dust which collects should either be allowed to remain undisturbed until the car is empty of passengers, or removed with a moist cloth, instead of being periodically distributed through the car by the ubiquitous duster of the porter. Cuspidors containing an antiseptic solution should be provided. At the end of each trip, the car should be carefully cleaned and disinfected by men who understand the practical use of disinfectants. Drinking utensils should be included in the general disinfection as should also toilet articles for common use, such as hair combs, brushes, &c. Closets should be carefully cleansed and washed with reliable antiseptic solutions. Each railroad should have an official who is a practical hygienist, who would be responsible for the suggestion and execution of all such details as would naturally occur to such a person.

‘So long as railroad companies vie with each other in making their cars as luxurious and as gaudy as possible, without regard to after-effects on their patrons, just so long will railroad travel be accompanied with danger from infectious diseases.’

*Sterilization of green vegetables, &c.*—The attention of the United States Government has been officially drawn to this subject by Dr. Edgar Passel, Assistant Surgeon United States Public Health and Marine Hospital Service. He says the news reports to the effect that the recent outbreak of the Asiatic cholera at Manila was due to an importation of germs on fresh vegetables brought from Hong Kong has given rise to a discussion in Italian medical journals as to the appropriate methods for the sterilization of crude greens. The subject is of especial interest in Italy, where salads form one of the staples of diet. In times of epidemics the question has a bearing on maritime hygiene. Large quantities of salad plants, lettuce, congeners of the cabbage, fennel, and other greens, are usually carried on board ship by emigrants leaving Italy. During the cholera epidemic in 1893, all such articles were prohibited and their exclusion was made a condition to granting the United States consular bill of health. Heat is, of course, inapplicable to the sterilization of fresh food stuffs, inasmuch as their virtues as articles of diet depend largely on their being eaten raw. Popular opinion naturally tends to the view that any hygienic measures applied to salad vegetables should be on the principle of asepsis rather than antisepsis. While the palatability of fresh greens might not be affected by suitable chemical treatment, it is easily understood that the impression produced by the antisepticizing would not be conducive to good cheer. Yet one experimenter, G. Ceresole, writing in the *Policlinico*, recommends the use of tar-



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taric acid. He states that a sample of salad infected experimentally with a culture of the cholera spirillum was sterilized in five minutes by a 2 per cent watery solution of tartaric acid. To avert danger from the consumption of crude greens it is sufficient to immerse them for half an hour in a 3 per cent solution of tartaric acid. It is asserted that salads so treated and afterwards washed with water are absolutely nontoxic and that their gastronomic qualities are unaffected by the process. It is recorded that the bacilli of pest and of diphtheria are killed in five minutes by a 5 per cent solution of tartaric acid.

The recent studies of Wurtz and Bourges are in point. In these inquiries it was demonstrated that the use of washings of cesspools for manuring truck gardens is perilous to health. Pathogenic organisms thus deposited on vegetables are capable of retaining their virulence for long periods. In France, an official inquiry has been made into this matter and a hygienic commission has confirmed the conclusions of Wurtz and Bourges. The commission was composed of Brouardel, Roux, Wurtz, and Ogier.

*The Quarantine Stations, &c., Grosse Isle, Que.*—At this station and at its sub-station of Rimouski 419 vessels have been inspected during the year—388 at Grosse Isle and 31 at Rimouski. 53,379 persons were inspected.

Nineteen vessels arrived with infectious disease.

The admissions to hospital were 264. They included cases of small-pox, chicken-pox, measles, scarlet fever and enteric fever.

The deaths were ten: one from phthisis, three from measles, and six from scarlet fever.

The installation of the electric light and the modifying of the third class detention buildings, by their division into compartments or staterooms, with water and drainage, are important improvements at this station during the year.

The chief requirements for the completion of the station are a deep water wharf, a second steamboat, and a small steam disinfector for hospital clothing, with bath room and dressing rooms for personal disinfection.

The question of rebuilding the old wooden detention sheds, which date from 1832 and 1847, will soon have to be met.

*Halifax, N.S.*—Vessels inspected 482. 59,172 persons inspected. Cases treated in hospital 56, being 12 of small-pox, 40 of measles, 3 of scarlet fever, and 1 of diphtheria. Two deaths occurred, one from scarlet fever and one from acute pneumonic phthisis. The erection of a bacteriological laboratory, the addition of an ambulance, and improvements to the wharfs, tanks, water supply, plumbing and to the roads, are amongst the works of the year. Telephonic communication has also been permanently established, replacing the temporary connection heretofore most courteously allowed us from time to time by the military authorities.

Amongst things required for the station are a house for a resident medical officer, the electric light, and the division into staterooms of the third class sheds. The laboratory requires equipment. A small steam disinfector is also required for sterilizing soiled hospital bedding and clothing, with a bath room and dressing rooms for personal disinfection.

The steamer *Argus* will soon require to be replaced by a better boat, with proper accommodation for landing the sick.

*St. John, N.B.*—Vessels inspected, 1,053; persons inspected, 40,990; vaccinations, 3,228. Admissions to hospital 32, being 1 case of enteric fever, 8 of measles, 6 of small-pox, 4 of yellow fever, 2 of German measles, and 2 of cerebro-spinal meningitis. There were two deaths in hospital, one from small-pox and one from measles. The great requirements of this station are a fresh water supply, a wharf and electric lighting.

The work of the station has been greatly increased this year by the inspection of many vessels arriving from contiguous ports in the United States. This is well shown by the number of inspections, being 1,053 as compared to 272 last year.



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*Sydney, C.B.*—Vessels inspected, 214. The diseases at this port during the year were small-pox on a coastwise vessel and beri-beri on a vessel from the south-east coast of Africa.

A steam disinfector has this year been installed at this station, with a commodious shelter building over it.

*Charlottetown, P.E.I.*—Vessels inspected, 144. This includes arrivals from other provinces, whilst small-pox was most threatening, but does not include the daily steamer from Pictou, although that vessel was regularly inspected during that time, before communication with the shore was permitted.

Four cases of small-pox were admitted to hospital, of whom one died.

*Chatham, N.B.*—Vessels inspected, 90. No infectious disease found during the year.

*William Head, B.C.*—Vessels inspected, 442. Admissions to hospital were for small-pox, chicken-pox, measles and beri-beri.

Three steamers were quarantined for small-pox during the year. Of these one was the *Rosalie*, one of the daily boats from Seattle. The routine work of disinfecting healthy vessels from plague infected countries is now replaced, as far as China and Japan are concerned, by disinfection at the port of departure.

During the year houses have been built for the medical assistant and for the engineer. A cottage hospital for plague or small-pox patients, and a building as a bacteriological laboratory have been erected; also a boat-house, a storehouse, a rice kitchen and an icehouse. A second steam disinfecting cylinder of latest design has been supplied. The boiler-house has been enlarged to make room for the extra boiler required and for the dynamo for the electric lighting, which is being installed.

Amongst the most essential and pressing requirements of the station may be mentioned a new sulphur dioxide blast furnace. The present one is the first I designed for the St. Lawrence service, and it was sent to Victoria. At that time—now a good many years ago—the disinfecting work was much lighter on the Pacific coast than it is now. The furnace and its appliances are worn out and burnt out. It is very urgent that a new and up-to-date sulphur furnace be provided. Formaldehyde and ammonia retorts are also required as attachments to the new cylinder; electric thermometers and telethermometers also. An approach to the disinfecting building along the shore is indispensable to obviate the risk of the reinfection of the disinfected caused by their having to pass back amongst those waiting for disinfection. A connecting piece at eastern end of wharf to cut across the angle would also greatly facilitate the work. Different roadways to and from the disinfecting building are of the essence of preventive medicine. Whilst at Victoria I visited, on the invitation of Dr. M. H. Foster, of the United States Public Health Service, the quarantine station at Port Townsend, Wash. Dr. Watt accompanied me, and we were most courteously and kindly received.

*Victoria, B.C.*—Vessels inspected, 866. These inspections were principally of vessels from neighbouring ports. The danger from small-pox having much diminished, these inspections were again suspended from August 31. In June a case of measles and in December a case of smallpox were found on the daily steamer from Puget Sound ports. They were sent to the quarantine station at William Head.

*Vancouver, B.C.*—Vessels inspected, 429. Principally from ports north of San Francisco prior to the exemption from inspection being renewed at the end of August. No infectious disease.

*Temporary frontier and coast inspection.*—In addition to these regular stations you have this year given the country the additional protection of extra inspecting officers at the following points, where peculiar threatening of small-pox, or the reported lack of effective health organization to the south of them, seemed to make the importation of small-pox most to be feared. Such extra inspections were carried out for greater or lesser periods at the following places: In Cape Breton, Louisburg; in Nova Scotia, Canso, Yarmouth, Weymouth, Bear River and Clementsport, and Digby; in New



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Brunswick, McAdam Junction ; in Prince Edward Island, Georgetown and Summerside ; in Ontario, Cornwall, Erieau and Rondeau, Owen Sound, Thessalon, Bruce Mines, Sault Ste. Marie, Port Arthur, Fort William, Mine Centre and Rainy River ; in Manitoba, Sprague, Emerson, Gretna, Morden, Crystal City, Killarney, Boissevain, Deloraine and Waskada ; in the North-west Territories, Carnduff, North Portal, Coutts, and Macleod ; and in British Columbia, Gateway in the Tobacco Plains, Rykerts, Rossland with Northport, Grand Forks with Cascade and Carson, Greenwood with Midway and Myers' Creek, Huntingdon and Blaine ; also Log Cabin on the White Pass and Yukon Railway for the protection of northern British Columbia and the Yukon Territory.

*The North-west Territories.*—At this date last year when I submitted my last annual report, those Territories were all practically free from small-pox. During the early winter it was carried in from Manitoba to the railway construction camps in the Erwood and Prince Albert districts. There were in the Prince Albert district 230 cases, in the Lebret district 115 cases, in the Vegreville district 56 cases, and in the Wolseley district 30 cases. The large number of cases in these four districts, a total of 431, was due to the concealment of the disease by those affected until the infection was widespread. In the 28 other outbreaks of the disease occurring during the year, where prompt notification was given, the disease was in all instances confined to the one or two families first affected, the cases in the whole of these 28 outbreaks only reaching a total of 133 cases.

Of the whole 564 cases, fully 500 were half-breeds. The appearance of cases at points scattered all over the Territories is largely due to the unsettled, wandering habits of these people.

Dr. James Patterson, your very efficient public health officer in the North-west Territories, in his annual report for the year, gives a just and fitting recognition of the inestimable value the North-west Mounted Police have been in establishing and maintaining quarantine, and in the purchasing and distribution of supplies.

*The Yukon Territory.*—There were two cases of small-pox in this territory this year. They were steamboat hands, and presumably infected from Seattle. They were quarantined on Dog Island in the Yukon River below Dawson, and the disease did not spread.

*Leper Lazaretto, Tracadie, N.B.*—There are now at this institution nineteen patients, twelve male and seven female, one more than at this time last year.

The most pressing requirements of this institution seem to me to be :

1st. A small steam disinfecter in which bedding, clothing, &c., can be sterilized and rendered safe before being handled and washed. The religious ladies nurse and care for the lepers in this institution with a self-sacrificing devotion beyond all praise. Nothing, therefore, should be left undone that can be devised to in any way lessen the risk of infection to which they so heroically expose themselves.

2nd. A stone or brick cinder and ash pit as a precaution against fire.

3rd. Alike for comfort and as an assurance against fire, gas or the electric light would be an improvement on the present system of lighting this institution by coal oil lamps.

*Public Works Health Act.*—Your inspector, Mr. C. A. L. Fisher, reports considerable improvement in the medical supervision of the public works visited by him, showing its results alike in the hospital accommodation provided, the sleeping quarters for the men and the medicines supplied, all of which compare favourably with his observations of the previous year.

I have the honour to be, sir,

Your obedient servant,

F. MONTIZAMBERT, M.D. Ed., F.R.C.S.E., D.C.L.,  
*Director-General of Public Health.*

The Honourable

The Minister of Agriculture,  
Ottawa.



## No. 2.

(G. E. MARTINEAU, M.D.)

OFFICE OF THE MEDICAL SUPERINTENDENT,  
GROSSE ISLE, QUEBEC, Oct. 31, 1902.

SIR,—I have the honour to submit my annual report of the St. Lawrence Quarantine Service to October 31, 1902.

There were 388 vessels inspected at this station during the quarantine year, being a decrease of nineteen as compared with last year. Of these twenty-seven were sailing vessels.

The total number of persons examined was 53,379, being an increase of 13,108 over last year. These were divided amongst the different classes as follows:—First cabin, 2,604; intermediate, 5,180; steerage passengers, 25,974; crews, 17,341; cattlemen, 2,109; stowaways, 171.

Infectious disease was reported or discovered in the following vessels, named in the order of their arrival:—SS. *Tunisian*, *Lake Simcoe*, *Parisian*, *La Canadienne*, *Montfort*, *Ionian*, *Jacona*, *Lake Megantic*, *Dominion*, *Numidian*, *Mongolian*, *Lake Manitoba*, *Lake Champlain*, *Lake Ontario*, *Verbena*, *Kastalia*, *Barque Cambria*, *Tiger* and *Iberian*.

The diseases as reported or found were small-pox, scarlet fever, chicken-pox, measles, enteric fever and mumps.

Only one instance occurred of a person refusing vaccination, although on three other different occasions parties refused to be vaccinated by the ship's surgeons, but consented to allow the quarantine officer to do so.

The case refusing vaccination was a passenger on board ss. *Dominion*, arriving May 11, 1902. He was landed for the usual period of observation.

*Small-pox*.—The government ss. *La Canadienne*, Commander Wakeham, left Quebec on May 3, but two days after her departure one case of small-pox having been discovered amongst one of the crew, she then came back and arrived at the station on May 6 with 34 persons on board. We presume that the disease had been contracted before sailing at Quebec or St. Michel de Bellechasse.

The instructions from the department being to deal with *La Canadienne* like any other vessels coming from outside ports and bringing small-pox, we removed the patient to the small-pox hospital at the station and we disinfected thoroughly the vessel with steam, sulphur, formaldehyde and bichloride of mercury. All persons were vaccinated, bathed and had their effects disinfected by the usual process. No other cases having occurred they were released on the 21st of May, after a detention of fifteen days for observation. The patient having fully recovered, was discharged from the hospital at quarantine and left the station on June 28.

SS. *Ionian*, Captain Brown, sailed from Liverpool on May 13, with 86 cabin, 153 intermediate, 597 steerage passengers and 189 crew, arrived at the station on May 24 with one case of small-pox amongst the steerage passengers.

That case had been discovered and isolated during the forenoon of the 23rd (the day previous to the arrival of the vessel at the station). He was removed to the small-pox hospital at this station.

In order to cause the least possible delay, we asked the captain to have his steamer anchored near the station, but the pilot was not willing to take that responsibility, therefore the vessel was left in the offing, a distance of one mile from the station, and we had to go out to her with our boats to land the passengers and their baggage, which was very inconvenient and occasioned a greater delay, and on the 26th a strong easterly gale prevented us from boarding the vessel.



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Acting under instructions from the department, only the steerage passengers were landed (597 in number), with 31 steerage stewards and cooks, and the vessel proceeded with all others on May 27, after having had her hospital and steerage compartments thoroughly disinfected.

Those detained having completed the period of eighteen days for observation, and no cases having occurred amongst them, were released and left the station on June 10.

The patient was discharged from the hospital and left the station on July 5.

SS. *Dominion*, Captain Jones, sailed from Liverpool June 5, and arrived at the station on the 14th of the same month with 42 cabin, 96 intermediate, 718 steerage passengers, 4 cattlemen and 137 crew.

On her arrival, one suspicious case having been reported by the surgeon on board, we found after careful inspection that it was small-pox; he was immediately removed from the steamer to the small-pox hospital at the station.

That case having been promptly and satisfactorily isolated: we landed, after instructions from the department, only those being in the same compartment occupied by the sick, we disinfected carefully the hospital and the forward steerage compartment and the vessel proceeded on the 15th, leaving at the station 352 passengers and 15 members of the crew for observation. All these people were released and left the station on July 1, with the exception of the patient who was discharged from the hospital and left on July 22.

This year has been a very busy one at this station, specially at the hospital, where we had up to 106 persons at the same time suffering from different diseases.

The total number of admissions at the hospital was 264.

The deaths numbered ten; one from phthisis, three from measles, and six from scarlet fever.

In accordance with the instructions from the department, we have made careful inspection of vessels coming from South American ports, on account of the existence of yellow fever at that place. Special care has also been exercised in the inspection of vessels arriving at the station without having a clean bill of health.

*Quarantine Staff.*—Dr. A. Lapointe continued, during the season, the inspection of the weekly mail steamers at the Rimouski sub-station.

I visited this advance port, and coming up from thence on the mail steamer, made a detailed inspection between Rimouski and Grosse Isle.

The staff had also to be increased since the installation of the electric light at this station.

*Requirements and Improvements.*—During the detention of the ss *Ionian's* passengers, many complaints having been made about the accommodation for the steerage passengers, I am happy to say here, that necessary steps were immediately taken to have the necessary improvements carried out; the water and closets were put into the buildings, the sheds were divided into compartments, and a good system of drainage was introduced.

I may perhaps be permitted to add, there are still many works and repairs to do, the list of which is in the hands of the Public Works Department, and I beg to hope that they will be granted and carried out during the next year.

*Reserve Inspecting Steamer.*—The great deficiency continues to be that of a strong and suitable boat, as a reserve supply, disinfecting, and mail steamer and for the forwarding of the convalescents when discharged from the hospital at quarantine.

*Deep Water Wharf.*—Another deficiency is that of a deep water wharf to which infected vessels could be brought to land their passengers and effects, and alongside of which our boats could be sheltered in rough weather and seas.

I can only repeat, as I have always done upon every possible occasion, that those two above requirements are essential, all-important, and ever-pressing needs of the St. Lawrence quarantine service.



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*Steam Laundrying-Disinfecting Apparatus.*—One of the most important wants for the hospital is that of a steam laundrying-disinfecting apparatus, so as to sterilize the contaminated linen, clothes, bedding, &c.

*New Buildings.*—Two new buildings ought also to be erected, one to be divided so as to be used for quarters for the employees. In the previous years many of our men, being unmarried, were boarding with the other employees, and we had therefore enough buildings; but now, all the employees being married people and the staff having increased we are short of lodgment.

The other one, which should be placed in the upper part of the island, could be divided so as to give an office, a surgery, a waiting room and a room to vaccinate passengers, and on the second floor we could have four rooms in which to put the passengers suffering from diseases other than the contagious ones.

I will close my report by urging upon the importance and necessity of these different requirements that I consider essential and in the interest of the station as well as of all those concerned.

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

G. E. MARTINEAU, M.D.,

*Medical Superintendent, St. Lawrence Quarantine Service.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 3.

(N. E. MACKAY, M.D.)

HALIFAX, N.S., October 31, 1902.

SIR,—I have the honour to submit my annual report of the quarantine station at Halifax, N.S., for the year ending October 31, 1902.

During the year just ended we inspected 482 vessels, an excess of 171 over the previous year. This increase is largely due to the withdrawal of exemption from inspection of vessels from New York and ports north of it. In the same period we examined 11,302 cabin passengers; 2,984 intermediate; 27,585 steerage and 17,301 crew, a total of 59,172 souls—an excess of 28,734 over last year's list.

In the year just ended we had more work at this station than in any previous year in its history. Nearly every boat which arrived with immigrants from Liverpool in the spring of the year, had either measles or scarlet fever among the steerage passengers; and every one of the Hamburg-American steamers which came here in April, May and June had infectious disease, especially measles, among the immigrants, but those of later date were free from disease.

During the year we treated 12 cases of small-pox, 40 cases of measles, 3 cases of scarlet fever, and one case of diphtheria. One of these, an officer suffering from scarlet fever, we treated in the infectious hospital in the city. Two deaths occurred at the station—one from scarlet fever and one from acute pneumonic phthisis.

The graver quarantinable disease, small-pox, was found on the steamer *Dahome* from London on January 1, 1902. One of the stewards had the disease. There were 5 first-class passengers on board and she had a crew of 46. The patient was isolated as soon as the disease was discovered and every possible precaution was used to prevent it spreading among the passengers and crew. Every person on board was vaccinated



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immediately on arrival of the ship. The vessel with all on board was sent to Lawlor's Island for the regular quarantine period of observation. None on board developed the disease.

The owners having provided a new crew, the vessel was released as soon as she was thoroughly disinfected. Disinfection was made with mercuric chloride, sulphur and formaldehyde. The clothes worn by the patient while sick were destroyed. No one contracted the disease from the vessel after she had been disinfected and released, Mr. Kisser's report to the U.S. Treasury Department to the contrary notwithstanding.

The captain and surgeon of the *Dahome* on being bathed and their clothes and effects disinfected were released ; they having made a declaration to the effect that they had had small-pox before.

When I made my annual report on October 31, 1901, there were seven small-pox patients from the Gloucester schooners *Thalia*, *Essex* and *Goodwin* at the station, unfit to be discharged ; they all recovered and were released on December 9, 1901, and so far as I know no one contracted the disease from them after they were discharged.

In May and June of this year four cases of small-pox were treated at the station ; they belonged to the fishing schooner *Jennie Myrtle*, from Lunenburg, and were under the control and at the expense of the Department of Marine. The four recovered. The vessel had a crew of 16. To show the efficacy of vaccination as a preventive of small-pox, I may say that of the 8 who had been successfully vaccinated in the fall of 1901, none of them contracted the disease, but of the 8 who had not been vaccinated since childhood 4 developed it.

Minor quarantinable diseases were found on the following vessels : *Lake Superior* from Liverpool, November 29, 1901, 7 cases of measles—6 convalescent and one nearly so ; *Garth Castle* from Liverpool, December 14, 1901, 1 case of scarlet fever ; *Musician*, from Liverpool, February 24, one case of scarlet fever among the first-class passengers ; *Corinthian*, from Liverpool, January 18, 1 case of mumps ; *Ionian*, from Liverpool, March 6, 1 case of laryngeal diphtheria ; *Tunisian*, from Liverpool, March 29, 2 cases of measles and 3 of scarlet fever ; *Bulgaria*, from Hamburg, April 30, 14 cases of measles, 2 died of diphtheria on the passage ; *Assyria*, from Hamburg, May 13, 6 cases of measles and one of acute pneumonic phthisis ; *Arcadia*, from Hamburg, May 27, 1 case of measles—one died of heart disease on the passage ; *Armenia*, from Hamburg, June 13, 2 cases of measles and 1 of chicken-pox ; *Bulgaria*, from Hamburg, June 19, 6 cases of measles.

The diphtheria case ex *Ionian*, March 6, had to be intubated and a special nurse was employed to attend the child. The patient I am pleased to state recovered.

Diseases other than quarantinable, occurred on the following vessels :—SS. *Dahome* from London, November 2, fractured ribs ; *Numidian*, from Liverpool, November 25, pneumonia ; ss. *Pisca* from Hamburg, December 31, pneumonia ; *Nicker*, from Bremen February 26, pneumonia ; *Armenia*, from Hamburg, June 15, 3 cases of pneumonia ; *Cestrian*, from Durban, South Africa, July 29, 7 cases of sickness (pneumonia, typhoid fever and injuries) ; Troopship *Armenia*, from Southampton, September 28, 1 death from accute congestion of the lung.

The quarantine officer at St. John, N.B., was notified by telegram of the existence of infectious diseases on board of all vessels calling here, making that port their destination, save one. This was the ss. *Lake Superior* from Liverpool, November 29, 1901. There were 7 convalescent cases of measles among the immigrants when the vessel arrived in this port, and if 18 or 20 cases were discovered on board when the ship arrived in St. John, they must have developed after she left here, at that time our station was in quarantine for small-pox.

The following improvements have been made at the station during the past year. The large wharf was replanked and the one at eastern passage repaired ; hydrants have been placed on the water service near the different buildings ; a surface well was constructed at the hospital and a bacteriological laboratory has been erected and an up-to-date ambulance provided. The water tank, which was at first poorly constructed and leaking, was repaired. It is to be hoped the tank will now hold water. The plumbing work which was badly planned to stand our winter weather is now being reconstructed, which when finished will, I trust, give satisfaction. The heating apparatus in the bath-



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houses had to be removed and are being replaced by cast iron upright radiators. It is to be hoped they will withstand the damp atmosphere better than the iron pipes originally placed there. The road from the wharf to the different buildings has been improved considerably, but it needs to be gravelled well. Telephonic communication has been established between the island and the city, by way of eastern passage and Dartmouth. This was much needed and it works very satisfactorily. The frame-work under the mercuric chloride tank was removed and boarded in and the whole structure painted—a great improvement. The roofs of the first class building, the third class detention building, the hospital, and the steward's residence will need re-shingling next summer. The third class detention buildings should be partitioned off into rooms for the better accommodation of passengers. The question of heating these buildings with hot water may have to be considered in the near future.

Decent partitions should be placed in the two small hospitals, and the ceiling painted, and so make them fit for the accommodation of suspects and for the better isolation and treatment of minor (for that matter major) quarantinable diseases. In the year just closed we had three different kinds of infective diseases at the station at one time, viz., diphtheria, scarlet fever and measles. The small hospitals would be admirable for keeping these diseases isolated.

The *Argus* is not well adapted for the work of this station which is growing yearly in importance. The boat is too small for our work. As most of our work is done in the fall, winter and spring, we need a larger steamer with better accommodations. At present we have no means of sheltering the sick from the cold and wet when taking them to or from the station, a distance of 4 or 5 miles. Then again there is a leak in the cabin bunks which we cannot stop, in consequence of which they are unfit for our men to sleep in.

The bacteriological laboratory should be equipped.

Adverse criticism of our accommodation at Lawlor's Island appeared in some of our city papers on the occasion of the arrival of the *Dahome*, from London, in January, with small-pox. No person likes to be detained in mid-winter at quarantine for 21 days, especially for small-pox. We all recognize this: first class passengers are always ready to pick at anything and everything in hopes thereby of getting rid of the confinement. Quarantine officers expect to meet with a good deal of opposition to the enforcement of the law under those circumstances, but usually in a few days all serious opposition to detention ceases. In this instance there was no just cause for complaint, for by the time we had finished the disinfection of the ship and the infected effects, and were ready to land the passengers and crew, the buildings were quite comfortable.

The signalling of incoming vessels by the signal station continues to be very unsatisfactory.

Violations of the regulations are of frequent occurrence, especially among schooners coming from New York and ports north of it; small city agents do not seem to discourage infringement of the law. Runners for city dealers are thorough nuisances in this regard, and they should be forbidden, by regulation, to board any vessel subject to quarantine inspection till free *pratique* has been granted.

Dr. Jones, who had been absent on leave in South Africa since January 22, with the Field Hospital, returned and resumed work on September 1.

I have the honour to be, sir,

Your obedient servant,

N. E. MACKAY, M.D., M.R.C.S.,

*Quarantine Officer.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 4.

(J. E. MARCH, M.D.)

St. JOHN, N.B., October 31, 1902.

SIR,—I have the honour to submit my report for the quarantine year ending October 31, 1902.

The following summary of the inspections shows what was done in this department each month, also the number of vaccinations performed and the totals for the year :

Month.	Vessels Inspected.	Passengers.	Crew.	Vaccinations.
1901.				
November. . . . .	77	500	1,020	600
December. . . . .	96	311	1,254	632
1902.				
January. . . . .	47	970	900	488
February . . . . .	37	1,554	1,048	369
March. . . . .	45	2,662	1,340	307
April. . . . .	78	1,848	1,425	270
May. . . . .	109	447	1,573	102
June . . . . .	120	1,194	1,797	176
July. . . . .	117	4,625	2,593	76
August. . . . .	141	3,912	2,931	90
September . . . . .	80	2,034	2,428	63
October. . . . .	106	904	1,620	55
Totals. . . . .	1,053	20,961	20,029	3,228

Number of vessels inspected in previous year, 272.

Quarantinable diseases were reported by or discovered upon ten vessels, as follows :

November 20, 1901, ss. *Concordia*, typhoid fever.

" 22, 1901, ss. *Lake Ontario*, scarletina and measles.

December 4, 1901, ss. *Lake Superior*, measles.

" 13, 1901, ship *Creedmoor*, small-pox.

January 13, 1902, ss. *Lake Superior*, measles.

February 2, 1902, ss. *Alcides*, small-pox.

March 9, 1902, ss. *Lake Michigan*, small-pox.

" 30, 1902, ss. *Lake Superior*, measles and scarletina.

April 12, 1902, ss. *Lake Ontario*, meningitis, scarletina and measles.

August 5, 1902, barque *Birnam Wood*, yellow fever.

One case of typhoid fever, nine cases of scarletina, eight of rubeola, six of small-pox, four of yellow fever, two of German measles, and two of cerebro-spinal meningitis—a total of 32—were admitted to and treated in the hospital for an aggregate of 661 days.

Because of exposure to grave quarantinable diseases, particularly small-pox, 226 persons were removed to quarantine of observation at the station. The aggregate of the days of detention was 2,836, an average of 12½ days (about).

In not a single instance during the year was any contagious disease transmitted from one to another in quarantine, nor did any quarantinable disease gain an entrance into the country through this station.



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Seven steamships were submitted to partial, and one steamship, one ship and one barque to complete disinfection.

The hospital with its contents was completely disinfected three times during the year. Seven hundred baths were given. Hundreds of packages and thousands of pieces of wearing apparel were disinfected both inward and outward at the station. The disinfections were performed without accident or injury to any article or fabric, and no claim was made for damages.

There were two deaths in hospital; one on 26th March, from small-pox, and one on 15th April, from a complicated case of measles in an infant.

A water supply has not been provided for us during the year. Undoubtedly the greatest task which the staff here had to perform last winter was that of keeping the hospital and detention building supplied with water. To make this at all possible fifteen hundred feet of iron pipe were strung over the uneven surface of the island from the storage tank in building D to the supply tanks in buildings A (hospital), and B (detention building for crew). The tank in A had to be filled two or three times, and that in B from three to five times in each twenty-four hours during the period these buildings were in use. It was found to be impossible to drain this long pipe so that it would not freeze. Each time it was used a thousand feet of it from the top of the hill to building A had to be disconnected at every second or third joint, and the sections emptied separately. In the cold weather if this was delayed for even a few minutes after the pump was stopped the whole line would freeze. Then it had to be taken apart at each joint, the sections carried to the boiler room in building D, thawed there, tested for breaks, carried back again and relaid.

This went on day after day and night after night. Even then the supply was intermittent and insufficient. I stated these facts in the early summer and asked that this pipe line be put under ground and below frost.

Assurances were received from the officers of the Department of Public Works, but nothing was done. The Minister of Public Works visited the station in August. I called his attention to the matter. He stated that the work would be finished before the beginning of the winter business. We are now within two weeks of that time and although a survey was made, tenders for the work have not, so far as I am aware, been called for. This means that we must again face the distressful conditions of last winter.

If so, we can accommodate no more during the cold weather than last year, when, with sixty-four in quarantine of observation and four in hospital, our facilities for supplying water to the buildings were taxed to the limit.

The capacity of our building is about six hundred. In other words we will be able to work up to one ninth of our capacity.

With the pipe line underground we could care for four hundred, the *Neptune* being able to bring here about four thousand gallons of water each tide.

On two occasions during the year there was delay, on account of storms, in the removal of the crews from steamships infected with small-pox, to the station. In one case the delay amounted to almost three days.

This is a serious matter to the men who are sick, to the men who have been exposed to contagion, and to the owners of the delayed ship. As we have undertaken to care for these cases, I think it will be admitted that facilities for doing so with reasonable expedition should be provided at all first-class stations, and particularly so as there are but few of them to be equipped. So far as providing a wharf at the station is concerned—prime necessity as it is—the situation seems to be complicated and the inception of the work unfortunately delayed by the position assumed by the engineers of the Public Works Department. For many years they have reported the desirability of closing what is known as the west channel by extending Negrotown Point breakwater to Partridge Island, and whenever the necessity for providing a wharf for quarantine purposes is brought to their attention the statement is made by them that the work could be better performed in connection with the greater one of extending the breakwater. And this statement is doubtless true, for, under the lee of the extended breakwater a very much lighter and more inexpensive structure would answer our purposes than though it had to be built to withstand the heavy seas that sweep the west channel



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during storms, but it is nevertheless my plain duty to state to you that further delay in providing quarantine wharf accommodation is inimical to the efficiency of the service and is likely to result in claims for damage sustained by infected vessels that have been compelled to remain at anchor in quarantine awaiting a suitable time for the transfer of the sick to the station and for disinfection. The channel in this harbour, within quarantine limits, is narrow, and in order to hold in it during a gale a ship must pay out so much chain that she is almost bound to take the ground, on one side or the other at low water. This has already occurred, as I have reported elsewhere, and that no claim for damage was set up was only a matter of good fortune. Although it would vastly improve the harbour and greatly simplify, and lessen the cost of the inspection work of your officer here, I must leave the closing of the west channel to those whose duty it is to deal with it. It is my duty, however, to continue to point to the fact that we greatly need a quarantine wharf, and cannot well do without it.

Twice during the year I have been called upon by the Director-General of Public Health to report upon the small-pox situation in the eastern United States and to express my opinion as to whether or not it was desirable or safe to discontinue the inspection of coastwise vessels from ports north of New York.

On both occasions I have advised against the discontinuance of this inspection. The failure of the health authorities of Boston and other towns in Massachusetts to eradicate small-pox during the past summer is pronounced and, I think, notable.

These towns are still a source of danger to the maritime provinces and there should be no relaxation of effort on the part of quarantine officers to prevent the introduction of the dread disease.

I quote the following from the editorial column of the *St. John Globe* of this date: -

'In a number of the towns of Massachusetts in the vicinity of Boston there are many cases—a very large number of cases of small-pox—reported, and the outlook at present is that a long time will elapse before the disease is thoroughly eradicated. The conditions suggest that special care should be taken in regard to people coming into St. John from Massachusetts by the health department here, for it is quite easy here under existing circumstances to have this disease again introduced here.'

This seems to me to be a fair statement of the situation and its requirements.

That not a single case of smallpox has occurred during the year on any of the many coasting vessels trading between St. John and Boston can only be attributed to the efficient vaccination to which the crews of these vessels have been subjected here.

I wish to express my appreciation of, and thanks for, the wise and liberal provision which has been made to meet the largely increased expenditure at this station on maintenance and current account. These items have been much larger during the year than ever before. I hope that you will be able to feel, as I do, that the results of the year's work have justified the expense.

I have the honour to be, sir,

Your obedient servant,

J. E. MARCH, M.D.,

*Quarantine Officer.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



No. 5.

(H. RINDRESS, M.D.)

NORTH SYDNEY, October 31, 1902.

SIR,—I have the honour to submit my report for the year ended October 31, 1902.

That this station is rapidly growing in importance can be seen from the fact that 214 vessels were inspected here during the present year, an increase of 95 over last year, and the largest number in the history of the port. Of the total number of vessels inspected there were 156 steamboats and 58 sailing vessels, 133 were cis-Atlantic and 81 trans-Atlantic. The cis-Atlantic arrivals here are from the northern and southern States, Mexico, West Indies and South America; the trans-Atlantic arrivals are from the United Kingdom, France, Germany, Spain, India and Italy. I am glad to say that no quarantinable, contagious or infectious disease has reached here from foreign ports during the year, but the schooner *Arthur Binney*, of Boston, arrived here from Liverpool, Nova Scotia, May 30, reported sickness on board, which on investigation proved to be a case of small-pox. The disease was no doubt contracted in Boston, but the vessel having entered and cleared from a Canadian port did not come under our quarantine regulations, and the patient therefore was cared for by the Local Health Board, who, however, owing to a lack of necessary equipment were unable to deal promptly with the matter, thus increasing the liability of spreading the disease. The local authorities, without the permission of the department, as a last resort took possession of the Quarantine Hospital and treated the patient there. He recovered, and no new cases developed. It is very unfortunate that provision is not made so that any contagious disease that might develop on coastwise vessels would receive the same prompt attention and care that is insured to foreign vessels.

The ship *Almedia* from Beira, on the south-east coast of Africa, arrived here on June 11 with nine cases of beri-beri on board. One of the patients was confined to his bed and was suffering severely from the disease, while the others had a milder type and seemed to be convalescing. The disease not being quarantinable and the patients preferring to remain on ship-board, they were not removed to the hospital.

A disinfecting building has been built this year at Point Edward and a steam disinfecting plant installed. The disinfector will be ready for use as soon as some small repairs are made.

The tug boat *Zaidee* used in the service has given good satisfaction.

I have the honour to be, sir,

Your obedient servant,

HORACE RINDRESS.

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 6.

(P. CONROY, M.D.)

CHARLOTTETOWN, P.E.I., October 31, 1902.

SIR,—I have the honour to submit my report for the quarantine year ending this date.

On November 7, 1901, I received an order from the Director-General of Public Health, directing me to inspect all vessels arriving at this port from any port outside of this province, and to receive their infectious sick. This inspection was deemed necessary on account of the prevalence of small-pox in the neighbouring provinces.

The order implied that the duty of protecting this province against contagious disease coming to this port from any port in Canada outside of Prince Edward Island, belonged to the Dominion Government. Every vessel arriving here, including the daily steamer from Pictou, was accordingly inspected and their crews and passengers vaccinated when such was required.

On November 20, 1901, the schooner *Monitor*, from Boston, via Halifax, Georgetown and Pictou, arrived at this port with a member of the crew suffering from small-pox in an advanced stage. The patient was placed in the hospital, where he died four days after his admission. The vessel was sent to quarantine for 21 days and the crew vaccinated. No other case of the disease developed on the vessel or on shore. Dr. Warburton attended to all inspections during the period of my isolation. When released I resumed the work of inspecting and continued it until the close of navigation on January 5, 1902. The order requiring the inspection of Canadian vessels was not enforced during the past season. On December 8, 1901, a case of small-pox from the schooner *Robin Hood*, which vessel had made customs entry at Georgetown some days before the patient developed the disease, was admitted to the hospital. The consent of the department was given to the admission of this patient on the condition that all the expense connected with the case would be borne by the local Board of Health. The hospital was formally handed over to the civic authorities for the accommodation of local cases of small-pox. Many articles of furniture and bedding destroyed by local authority have not yet been replaced.

On September 14, 1902, the schooner *Citizen*, from Lisbon, arrived at this port having two cases of small-pox among the crew. One case was in the stage of desquamation and the other in the stage of irruption. Both cases were of the confluent kind, and were very severe forms of the disease. Both recovered in due time, the last man being discharged from the hospital on October 20 instant.

The hospital has since been thoroughly disinfected and the bedding boiled in a strong bichloride solution. Some articles of bedding were destroyed.

The total number of vessels inspected was 72, not including the daily steamer from Pictou.

I have the honour to be, sir,

Your obedient servant,

P. CONROY,

*Inspecting Physician.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 7.

(J. MACDONALD, M.D.)

CHATHAM, N.B., October 31, 1902.

SIR,—I have the honour to submit my report for the year ended October 31, 1902. No disease of a contagious character was found on any of the vessels that arrived at the station during the past year. Ninety vessels were inspected since November 1, 1901.

Besides the above number about twenty steamboats arrived, which had touched at other points in Canada and were not subject to quarantine regulations at this port.

I have the honour to be, sir,

Your obedient servant,

J. MACDONALD, M.D.,  
*Quarantine Officer.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 8.

## REPORT ON WILLIAM HEAD QUARANTINE STATION.

(A. T. WATT, M.D.)

VICTORIA, B.C., October 31, 1902.

SIR,—I have the honour to submit this my report for the year ending October 31, 1902.

During this year, as in preceding ones, it has been necessary to observe extra precautions on account of the presence of plague in the ports from which the majority of vessels for British Columbia ports sail. This year, in addition, it has been necessary to inquire strictly into circumstances of vessels from Asiatic ports, as cholera has been more or less prevalent in the various ports of the Philippines, China and Japan. In San Francisco upwards of 35 cases of plague have been officially reported during the past twelve months, and in Honolulu cases have occurred almost every month. But only a few plague cases have been reported from Australia, and the same for Japan. The cases in Hong Kong have been some 400, which number is about one-third of the number reported for the previous year. The weather conditions in Hong Kong and neighbourhood seem to have been unfavourable to the spread of plague last summer and there has been less of the disease everywhere in China than has been the case for a number of years back. But the prevailing dry weather with the consequent shortage and deterioration of the water supply made suitable conditions for the spread of cholera. The



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scourge has been worse than for forty years. In the city of Nanking, the ancient capital, 40,000 cases were considered to have occurred up to the date September 6.

While the Nippon Yusen Kaisha steamer *Riojun Maru* was lying in Hong Kong harbour last March, six of the crew contracted cholera. The steamer underwent quarantine and disinfection at Hong Kong and arrived here without any further trouble having occurred. A sailing ship when about to clear for Port Townsend from Shanghai had a case of cholera on board and was detained on that account, but other cases did not develop either at Shanghai or on the voyage. There were numerous instances of cholera developing on vessels at Manila and having to undergo quarantine for that reason, and on one of the United States transports bound for San Francisco a number of cases broke out between Manila and Japan where the steamer was quarantined. She reached San Francisco with all in good health.

The number of vessels inspected during the past twelve months was 442. This was 46 less than for the previous year, but if the gross tonnage were reckoned it would exceed that of previous year, as the smaller vessels have been giving place to the modern sized ones. There has been a falling off in the number of colliers plying between British Columbia and San Francisco, owing to the extensive adoption of oil as fuel throughout California. But notwithstanding this falling off, the total tonnage has been kept above that of last year owing to the great increase in the Oriental trade. The diseases presenting were small-pox, chicken-pox, measles and beri-beri. Three steamers were quarantined during the year on account of small-pox. They were the American ss. *Rosalie* from Seattle, the British ss. *Yangtsze* and the Japanese ss. *Kinshiu Maru*, both from Hong Kong via Japan.

The ss. *Rosalie*, one of the daily boats from Seattle to Victoria, was sent to the station on the morning of December 22 by Dr. R. L. Fraser, quarantine officer at Victoria, as he had discovered a well-advanced case of small-pox in a child. The steamer was disinfected and taken away by a new crew. The original crew and the passengers were detained at the station. These people were quarantined at an unfortunate time of the year as both Christmas and New Year's Day had to be spent at the station. The steamship company supplied a full quantity of the good things which come at holiday time, so that every one managed to enjoy themselves pretty thoroughly. The little patient in the hospital was made happy by the receipt of a stocking containing \$40 in gold and silver coin subscribed by the passengers and crew. She also received a small decorated Christmas tree.

There was considerable stormy and rainy weather while the people from this steamer were here. The high boundary fence was blown down and other damage done. The guards had a very uncomfortable time of it, as their tents were flattened out and everything soaked by rain. I had to get them into a cabin on a neighbouring ranch. The needed quarters for the quarantine guards will, I hope, soon be erected. The lack of roads at the station was also much felt, as people could not go out without having to walk through wet grass. But this matter is to be remedied, as also others wherein discomfort and inconvenience were found to be incident to quarantine at this station in winter season. The lighting of the building and grounds will be a great boon, at this season particularly. This work is now under way.

The ss. *Yangtsze* arrived here on April 23 with one of the Chinese firemen suffering from small-pox. This steamer was one of the fleet of the China Mutual Company, which last year has extended its service to Victoria and Puget Sound and inaugurated a four-weekly steamship connection between London, England, and here, via Suez Canal and Asiatic ports. The sick man had been at once isolated by the captain in a temporary hospital constructed on the poop deck. To the prompt action thus taken must be attributed the fact that no other cases occurred, for but few of the crew were vaccinated. This steamer had eighty-one persons on board.

The ss. *Kinshiu Maru*, with 251 persons on board, arrived and was put into quarantine on May 6, as on mustering the passengers I found one of the Chinese to have small-pox. He had evidently been afflicted about ten days, during which time he had remained in the steerage. The ship's surgeon—a Japanese—had observed the rash as it broke out on the Chinaman, but evidently considered it of no moment and did not isolate



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the case. Later he must have become suspicious as he vaccinated all the Japanese crew, without, however, mentioning the desirability of vaccination for the Europeans on board. To have done so would have let the cat out of the bag and interfered with the course he had decided upon of letting the Chinaman pass muster if he could. But on the morning of arrival here he could not have been satisfied about his doing this safely, and so bethought the use of cosmetics to obscure what little was left of the spots on the man's face and body. The Chinaman became a work of Japanese art. Although the application was said to be 'just medicine,' I was positive, from the evident trouble that had been taken and the fact that the 'medicine' had been prescribed for the first time that morning, that the application was made with dishonest intent. I may say that owing to his conduct of this case throughout, the ship surgeon came in for a severe reprimand from the captain and the steamship agents, and came nearly being mobbed by the cabin passengers. The plea 'no know' made in a case like this should not be allowed to stand, but on the other hand it is impossible to get such evidence from Asiatics as to make a prosecution satisfactory under the circumstances.

Fortunately, only one other case occurred amongst the people from this steamer. This was a Chinaman who had been sleeping close to the other one. He got sick four days after landing here. The Chinese passengers, who had been kept in separate quarters, were again disinfected and were detained four days longer than the other people. As I wanted to keep the Chinese separate on account of having been more exposed, and it was necessary as well to keep the people from the ss. *Yangtze* apart from those of the *Kinshiu Maru*, the accommodation in the way of buildings was tried to its utmost. There was space enough, but it could not be utilized and keep the object in view of having the different groups properly separated. I am glad to say that now that the new small-pox hospital is completed that there will not be the same difficulty under similar circumstances in the future. It will now be possible to utilize the large hospital building, or part of it, for the accommodation of persons undergoing quarantine of observation.

Beyond those persons who arrived on the steamers on which the cases of small-pox were found, but few people were subjected to disinfection at the station during the year. This was owing to the fact that the routine disinfection of steerage passengers and Asiatic crew has been carried out at port of departure in case of all steamers which have arrived since last January from China and Japan.

This had been arranged for and carried out in the previous year by all the steamship lines going to Puget Sound calling first at Victoria. The Canadian Pacific Railway SS. Co. did not enter into the arrangement at the same time however, but did so about January last. From November 1 to January 8, when the last steamer was disinfected, five steamers of the C. P. R. line carrying steerage passengers and Asiatic crew to the number altogether of 1,532 arrived and were subjected to disinfection at this station. The fact that the disinfection of the crew and steerage passengers of all steamers now arriving from China and Japan is carried out at ports of departure is a matter of congratulation. The arrangement is very much more satisfactory and safer than having the disinfection left until arrival here. In Hong Kong the medical inspection of passengers is now made at the disinfection station instead of on the steamer as formerly and this summer in two instances plague cases were discovered amongst the intending passengers. Under the old practice passengers were accustomed to come on board as they happened along the day before sailing and were mustered for inspection the next morning. These cases might therefore have remained on the steamer over night without discovery and possibly have conveyed the infection to others, had not the new system of inspection been in vogue under which opportunity is given to turn back any such cases before they can get on board the steamer.

During the year a number of improvements were made at the station and others are in progress. Houses were built for the assistant medical officer and the engineer of the *Earl*. A new building was erected for the bacteriological laboratory and a cottage hospital for use of small-pox cases. This hospital was made of brick with hard finished walls inside and cement floors and will be well suited to the purpose intended. A boat house which will shelter the naphtha launch and small boat has been built, also store house for naphtha and a general store house. There were also built an ice-house with



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storage room for meats, outside kitchen with large rice boilers for use of steerage passengers, and a small lock-up. At the disinfection building many improvements are being made or are to be carried out. A shed has been put up connecting the wharf with this building as a protection against the weather in going to or fro from bath rooms, &c. A new cylindrical steam chamber has been installed and has just been satisfactorily tested. This chamber has many improvements over the old box-shaped one, and in construction is much stronger and may be expected to last much longer. It is 9 feet in diameter and 25 in length and was built in Victoria, brought down on a scow and rolled on shore. All the riveting was done by machine, and so well done that it was found to be tight everywhere when tested. The doors are opened or shut by a pump forcing oil into a number of small cylinders on each door. A counter balance makes it so that the heavy door can be raised out of the way of the baggage car with the greatest ease. A steam air exhaust is to be connected to the chamber and will produce a vacuum in much less time than the air pump. Both the new and the old chamber are to be connected with the air exhaust as well as with the pump. A new brick boiler house was built last winter and the boiler moved into it from the main building so as to make room there for the new steam sterilizer. A second boiler is soon to be put in as the one boiler is not sufficient to supply steam to operate the two steam chambers and the electric light plant as well. The electric light plant is now being put in and should be in working order in a few weeks time. All the buildings are to be lighted with incandescent lamps and the wharf and grounds with the arc light. The baths for steerage passengers are being renewed and new bath rooms for cabin passengers should soon be built, an appropriation having been made for these as also for several other improvements which, however, can not be gone on with until later. Several of the buildings were re-painted inside and out and their appearance has been much improved. Some repairs, new piping, &c., were put on the water main and some repairs on the road connecting the station with the Provincial Government road to Victoria. The various improvements which were made during the past year together with others for which appropriation has already been made will go far on the way of putting the station towards completion.

During August, Dr. F. Montizambert, Director General of Public Health, paid the station a week's visit after having inspected the various quarantine stations along the frontier. In consequence of his investigation as to the status of small-pox in the bordering states he recommended that the medical inspection of passengers for British Columbia points be discontinued. This recommendation meeting with your approval, the inspection of passengers from neighbouring states and Alaska was stopped at the end of August. Dr. Montizambert made note of various things at this station, and I am sure that results beneficial to station will follow. He left Dr. Anderson and myself with many things to remember from the lessons of his long experience in quarantine work. On the invitation of Dr. M. H. Foster, assistant surgeon, marine hospital service, in charge of the quarantine at Port Townsend, Washington, Dr. Montizambert and myself visited that station and spent two very enjoyable and profitable days.

I have the honour to be, sir,

Your obedient servant,

A. T. WATT, M.D.,

*Supt. B. C. Quarantines.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 9.

(W. H. K. ANDERSON, B.A., M.B.)

VICTORIA, B.C., October 31, 1902.

SIR,—I have the honour to submit the following report of the work done in the laboratory at William Head during the quarantine year 1901-2.

Supplies of Haffkine's prophylactic against bubonic plague have been manufactured from time to time during the year. The successive inoculation, with the plague germ, of animals (guinea pigs) has been continuous, and routine cultures and specimens have been taken from each case.

Various suspicious cases of disease have presented themselves, necessitating a bacteriological examination, but none have proved to be quarantinable.

During the summer a new laboratory building has been in course of construction upon plans sent in from this station, and with a view principally to work with the plague germ. The building and fixtures are now ready for occupation, and will prove a great improvement over the old temporary laboratory, which was fitted up in part of one of the detention buildings. The new apparatus, which is now on its way, and which includes the best microscope and accessories, will make the laboratory of this station fully up-to-date, and competent to fulfil the important work for which it was established.

I have the honour to be, sir, your obedient servant,

HAROLD ANDERSON, B.A., M.B.

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 10.

(R. L. FRASER, M.D.)

VICTORIA, B.C., October 31, 1902.

SIR,—I beg to present my report for the year just ended. Eight hundred and sixty-ships in all were inspected. On June 7, a case of measles was found on ss. *Rosalie*, and on December 27, a case of small-pox on the same steamship. On both occasions the vessel was sent to Williams Head where she was dealt with in the usual way.

The danger from small-pox having largely disappeared, inspection of vessels at this port was, by direction, omitted after August 31.

I have the honour to be, sir, your obedient servant,

R. L. FRASER, M.D.,  
*Quarantine Officer.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 11.

(L. N. MacKECHNIE, M.D.)

VANCOUVER, B.C., October 31, 1902.

SIR,—I have the honour to submit this my report for the year just ended.

The number of vessels inspected was 429.

No case of contagious or quarantinable disease arrived at this port during the year.

On January 4, I was advised by Dr. C. J. Fagan, secretary of the Provincial Board of Health, of two cases of small-pox which had developed some five and eight days respectively after their arrival here on the steamer *Mainlander* from Seattle, and that he would require the vessel disinfected by us, otherwise she would be prevented from landing in future. Dr. Montizambert, the Director General of Public Health, on being informed by wire of the matter, replied that as the cases developed after landing, the matter was not a Dominion one, but provincial or municipal, but that if the local authorities desired they might send the steamer *Mainlander* to William Head where the minister would place appliances at their disposal, all expenses to be borne by the province or municipality.

As the master of the steamer was advised by Dr. Fagan that the expense of disinfection would have to be borne by the vessel, he proceeded to Seattle, at which place he had the vessel disinfected.

While Dr. Montizambert was in Vancouver, he was informed as to the advisability of installing a telephone at the pilot station, and on his recommendation the Board of Trade were asked to report fully to your department on the matter.

Since August 28, vessels from ports north of San Francisco have been exempt from inspection, while the inspection of vessels from San Francisco has been continued for plague.

I have the honour to be, sir, your obedient servant,

L. N. MacKECHNIE,

*Inspecting Physician.*

The Honourable

The Minister of Agriculture,  
Ottawa.

## No. 12.

(JAMES PATTERSON, M.D.)

WINNIPEG, October 31, 1902.

SIR,—Last fall the North-west Territories were practically free from small-pox, but during early winter it was carried from Manitoba to Erwood, on the line of construction of the Canadian Northern Railway, and from there along the line to Kinistino and Prince Albert.

The cases which have come under my supervision during the past year are:—Prince Albert District, 230; Lebret District, 115; Vegreville District, 56; Wolsely District, 30; Edmonton District, 2; Indian Head, 1; Katepwa, 10; Balcarras, 1; Kenlis, 3; Grenfel, 1; Summerberry, 5 miles out, 2; Erwood, 3; Carnduff, near U.S. boundary, 3; Oxbow, 5; seven miles south of Oxbow, 2; Medicine Hat, one upon each



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of three occasions, 3 ; Battleford, 8 ; Bresaylor, 25 miles west of Battleford, 6 ; Regina, 1 ; Moosomin, 1 ; Rocanville, 22 miles north of Moosomin, 3 ; Ferndale, 18 miles north-east of Moosomin, 5 ; Tantallon, 35 miles north of Moosomin, 12 ; Lethbridge, 13 ; 45 miles from Lethbridge, 2 ; Cardston vicinity, 8 ; Moose Jaw, on two occasions, 3 ; North-east of Moose Jaw, 5 ; Josephberg, 40 miles south of Medicine Hat, 1 ; Muskeg Lake, 8 ; Willow Bunch, 3 ; Coalfields, 5 ; Melfort, 3.

The large number of cases in the first four named districts were entirely due to the existence of the disease being concealed by those affected until the infection was widespread. In the other twenty-eight, when prompt notification was given, the cases were in all cases confined to the one or two families first affected, by at once quarantining, vaccinating and disinfecting. Out of the 564 cases fully 500 were half-breeds.

The appearance of cases at points scattered all over the Territories, is largely due to the unsettled wandering habits of these people. With their wagons, tents and a few personal belongings, many of them are constantly travelling all over this western country, both north and south of the international boundary.

The 230 cases of small-pox occurring in the Prince Albert District were scattered over a section of country with a radius of between 50 and 60 miles from Prince Albert, including within it Stony Creek, Kinistino, Millar's Crossing, the Baskerville section, Shell Brook, Duck Lake, Batoche, Fish Creek, St. Louis de Langevin, Lepine Settlement, Belleview and Carlton.

A large number of the cases in the Prince Albert District originated from a man from Manitoba who went looking for land east of Prince Albert. He stopped for a short time in one of the railway construction camps, returned from there to a tie camp, forty miles from Prince Albert. In the usual time he developed a moderate attack. No medical man was called in ; as soon as he was able to walk about, the proprietor sent him away and immediately broke up his camp, the forty men he had working scattered to their homes all over the country and spread the disease broadcast.

I quote hereunder a report on this outbreak by the officer commanding the Northwest Mounted Police for your information.

The Lebret District took in all the country around Lebret, Fort Qu'Appelle, the File Hill Settlement and more than half way to the Touchwood Hills.

The Vegreville District covered 40 miles west, 45 miles south-east and 18 miles north of that point. Cases occurred in the families of the postmaster and a land guide. They were concealed whilst these two men, Frenchmen, continued to perform their duties, and thus the infection was spread until fifty-six cases occurred.

In the Edmonton district only two cases occurred. They contracted it at Vegreville.

The Wolseley district took in the country for ten miles around. A threshing gang from near Alexander, in Manitoba, went to Wolseley to work. Within a week after they went there the disease broke out amongst them. It was carried directly by half-breeds from Wolseley to Lebret district, and cases occurring were concealed until the infection was widespread.

The disease still prevails in Montana. Cases have occurred directly due to Canadian half-breeds visiting there—taking the disease, keeping it concealed, and returning home without any effort at disinfection.

Cases have also been met with in bands of American Indians crossing into the Territories at points far distant from medical inspectors or customs officers.

The largest mortality occurred in Lebret district, where six adults died.

The type of the disease is gradually increasing in severity. Cases occurring now are severe, not of the mild type so common in 1901.

The disease has been almost wholly confined to the half-breed element. At Vegreville those who suffered were largely American immigrants not protected by vaccination.

In Prince Albert district only some half dozen white people had it. In Lebret district all were half-breeds. At Wolseley, outside of the threshing gang, all were half-breeds or French.

At Oxbow, a Canadian bachelor farmer, seven or eight miles out of town, received a letter from his brother in Ontario, who said in it that his family were all ill with this



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disease that is called small-pox ; but he thought it was only chicken-pox. In two weeks this farmer developed small-pox—never having been off his farm during that time. He worked every day during the continuance of the attack, putting in his crop ; said he had to. From him his hired man developed a very severe case. A mounted policeman and his half-breed interpreter travelling over the country innocently called there for a meal. They took small-pox and nearly died. Three others in the hotel at Oxbow where these last boarded also contracted it. It is just in this way that the disease is spread and continues to crop up here and there. The type not being a fatal one, parties conceal the facts for fear of quarantine.

The virtue of vaccination becomes to me more and more apparent. There has not been a case of small-pox amongst those who availed themselves of free vaccine which I caused to be distributed, nor has there been a single case reported up to date from amongst the Galicians or Doukhobors.

The half-breed is an easy-going, careless, ignorant being. He will not use vaccine if given to him. He will not walk across the road to have it done free, unless small-pox be in the immediate vicinity. Ninety per cent of them will let you vaccinate them if you go to their houses to do it. I have only encountered one group who at first refused, and that was due to their late clergyman being an anti-vaccinationist.

The expenditure in connection with the control of this disease has been very considerable, for two reasons :—

1st. The Council of the College of Physicians and Surgeons for the Territories notified me that if I employed any young unlicensed medical men from outside in any of the outbreaks legal proceedings would be taken against them. I therefore had to arrange with local men on the best terms I could.

2nd. The class of people affected live from hand to mouth from day to day. When quarantined they have to be fed. I used this to aid as far as I could to maintain quarantine, threatening to stop supplies if quarantine was broken. This has proved more efficient than all the constables that could be placed around them. If you did surround them with constables you could not let them starve.

The food supplied has been of the plainest kind, but substantial, viz.: meat, flour, tea, sugar, and a very little of what might be called luxuries for patients seriously ill.

The North-west Mounted Police have been of inestimable value in establishing and maintaining quarantine, in the purchasing and distribution of supplies.

In the work I have had to do in the past there is one point which time and again has been brought most pointedly to my notice. It is this : When I find it necessary to quarantine individuals, to order supplies and medicines through the North-west Mounted Police, or to lay down regulations for disinfection, &c., I am continuously asked for my authority. My reply is, 'The Director General of Public Health, acting for the Minister of Agriculture.' People, otherwise intelligent, constantly mix up the Department of Agriculture at Ottawa with that at Regina. Others again assert that they were under the impression that the duties of the Director General of Public Health were confined to guarding the seaboard and international boundary, and had nothing to do with the interior.

If your office at Ottawa was styled by the minister, by order in council, or by the proper power, the Dominion Government Department of Public Health, then all your correspondence, suggestions, regulations, &c., coming from such a department, being headed Dominion Government Department of Public Health, would convey to the public at large a greater sense of authority and correctness.

This change would not entail any change of the minister at the head, any change of, or addition to, your officials, or any expense except what might be entailed in the printing of your blank forms, &c.

You will pardon me for suggesting this change. It perhaps should not form part of a report ; but the importance of the matter to my mind is my excuse.

I am, sir, your obedient servant,

The Honourable  
The Minister of Agriculture,  
Ottawa.

JAMES PATTERSON.



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(Copy.)

PRINCE ALBERT, August 31, 1902.

The Commissioner,  
N. W. M. Police,  
Regina.

SIR,—I have the honour to report as follows concerning the small-pox epidemic in this district which commenced in February last, and is now gradually dying out.

At the present time there are still in quarantine some seventy persons, twenty-five of whom have been affected with small-pox, all of whom ought soon to be released from quarantine. For the six months commencing on March 1 and up to August 31, the number of persons quarantined for periods varying from three weeks to eight weeks is :

No. quarantined . . . . .	587
“ cases small-pox . . . . .	212
“ receiving government relief . . . . .	432
“ deaths . . . . .	3

Of the persons receiving relief all were more or less destitute half-breeds who were deprived of their ordinary means of existence by being quarantined.

Thirty-two Sioux Indians included in the above were supplied provisions by authority of the Indian Commissioner at the expense of the Indian Department, two of the cases of small-pox being Sioux Indians out of a camp of thirty-two.

Deducting the thirty-two Indians from the above totals, these being supported while in quarantine at a total cost to the Indian Department of \$80.43, it leaves 400 indigent persons receiving relief chargeable to the Department of Agriculture.

The total expenses to date for which accounts have been forwarded through the Commissioner's office to the Department of Agriculture are as follows :

1. Provisions to 400 indigents, consisting of meat, flour and tea, and including entire maintenance of an isolated hospital for almost four months . . . . .	\$1,053 99
2. Special constables in exceptional cases . . . . .	52 00
3. Transport . . . . .	24 50
4. One special constable acting as nurse, cook, &c., in an isolated hospital at \$2.50 per diem . . . . .	267 50
5. Board of N. W. M. Police on permanent quarantine duty . . . . .	151 99
6. Disinfectants . . . . .	89 90
7. Contingencies, travelling and billeting expenses of N. W. M. Police while on quarantine patrols . . . . .	108 93
	<hr/>
	\$1,748 81

The provisions were delivered to the various recipients without extra cost to the Department of Agriculture, at the instance of the N. W. M. Police.

Summary for the six months ended August 31, 1902 : Indian Department, thirty-two persons quarantined, of which two had small-pox, and all received relief amounting to \$80.43 ; Agriculture Department, 555 persons quarantined, of which 210 had small-pox and 400 received relief at a total cost of \$1,748.81.

I have the honour to be, sir,

A. ROSS CUTHBERT, *Supt.*,  
*Commanding 'F' Division.*



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## No. 13.

(A. C. SMITH, M.D.)

TRACADIE, N.B., October 31, 1902.

SIR,—I have the honour to submit this my annual report on the Tracadie lazaretto, made up to this date.

To-day we have registered on the books of the lazaretto twelve males and seven females, the youngest 11 and the oldest 63 years of age. Of these fifteen are of French, three of Icelandic and one of English origin. Six are in what we may call the first stage of leprosy, eleven in the second and two in the third, or final stage when death is liable at any moment to end the scene.

There were no deaths during the year. One new case was admitted from an adjoining parish.

I have again to report that the diminution in the number of persons afflicted with leprosy in this province, although slow, has been steady for many years, owing, I believe, to the more effective segregation. It may be advisable to mention here a possible—but until recently an unsuspected—mode of communicating the disease. In a room containing lepers, Schaeffer, a German physician, placed microscopical slides upon a table near which he had the patients read aloud. On subsequent examination of the slides very large numbers of the leprosy bacilli were found thereon.

Although the pulmonary and enteric troubles from which our lepers suffer so much are, in my opinion, not merely complications, but are of a leprous character, much may be done to relieve the sufferers. I find that writers on leprosy confine their remarks on treatment to an enumeration of the so-called cures of the disease. For some time past I have given special attention to the relief of our lepers in their various intercurrent affections. During recurrent febrile periods—a very frequent source of suffering to our patients—I have found quinine to have a very beneficial effect. I have at times been surprised at the rapidity with which ulcers and wounds, the result of small operations, heal under treatment. We have, perhaps, some reason to believe that as our knowledge of the life-history of the lepra-bacillus becomes more complete we shall find a means to kill the parasite without at the same time killing its host. Chaulmoogra oil has been extensively used in the treatment of leprosy, but its proneness to disturb digestion has limited its use to a small proportion only of those affected. I now believe that I have overcome the difficulty by combining it with syrup of wild cherry bark, and have resumed its use here.

The institution was visited a few weeks ago by Dr. Stelwagon, whose recently-issued work on Diseases of the Skin contains the clearest and most satisfactory description of leprosy that I have seen in any text-book. Also, a few days later, by Dr. French, one of the physicians in charge of a leper colony in the Hawaiian Islands. Dr. French visited the lepers on Darcy Island before coming to Tracadie. He remained with us three days, and on leaving informed me that our lepers here are made much more comfortable and enjoy more privileges than those in the Hawaiian Territory.

As stated in a former report, the religious ladies who are passing their days as nurses in this “cemetery of the living” are untiring in their efforts to smooth the pathway of our unfortunates to the grave. Every want is carefully attended to; and the patience shown in dealing with whims, even in the matter of food, is surprising and beyond all praise.

The lazaretto is working out the designs of its organization as a place of detention for the purpose of reducing the number of foci of leprosy, and of relieving the com-



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munity of a disgusting and dangerous menace. It is also a comfortable home for the poor outcasts gathered within its walls.

I have the honour to be, sir,

Your obedient servant,

A. C. SMITH,

*Inspecting Physician and Physician to the Tracadie Lazaretto.*

To the Honourable  
The Minister of Agriculture,  
Ottawa, Ont.

No. 14.

## REPORT OF THE PUBLIC WORKS (HEALTH) INSPECTOR.

(CHAS. A. L. FISHER, J.P.)

October 31, 1902.

SIR,—I have the honour to submit this my annual report as Public Works (Health) Inspector to October 31, 1902, and to append hereto the reports I have received from medical officers or engineers employed in their said capacity, on some of the various public works, I have personally inspected.

Since my last report I have covered the territory in the Dominion, from the Pacific to the Atlantic ocean, and have visited and inspected all public works of which any notice had been sent you, as required by clause 2 of the regulations under the Public Works (Health) Act, 1899, and others, of which no notification had been sent as required, and of which I became aware only by inquiry, or from items published in newspapers.

I have to draw your attention to the fact that some of said notices regarding public works that were under construction, were sent you by the parties responsible therefor, at such a late date, that in some instances, on my arriving at the works, shortly after receipt of notification, I found them almost completed, and so few men then employed thereon, that they would not come under the application of the Public Works (Health) Act, 1899, regulations, but as companies and contractors are beginning to better understand the intentions of said regulations, I hope for an improvement in the matter, in the future.

I am pleased to be able to report, that at a number of the public works visited during the past twelve months, I found considerable improvement in the medical supervision given thereon, the hospital accommodations and medicines provided, and in the sleeping quarters for the men when housed together, as compared with such works carried on during the previous year, under similar circumstances.

I do not feel that I would be doing justice to those interested, if I omitted to bring to your notice the fact that on all public works that came under my supervision since my last annual report, I have been given all possible assistance by the companies, contractors, medical officers, or others in charge of such works, towards enabling me to make a thorough inspection.

In giving a more detailed report, as hereunder, of the most important public works visited and inspected under the regulations of the Public Works (Health) Act, 1899, I will classify the same under four heads, viz: canals, railways, bridges, mines and works of other public companies.



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## CANALS.

The works of this kind carried on by the Dominion Government, on which a sufficient number of men were employed to bring them under the application of the regulations of the said Act, were five.

*Galop Rapids Canal.*—These works are at Cardinal, Ont., and are under contract to Messrs. Wm. Davis & Sons.

As they were approaching completion, there were not as many men employed as during the previous year, and these either occupied their own houses, or boarded with surrounding residents.

Medical supervision was at hand, the contractors having necessary tents, &c., for emergency use, and a permanent hospital is within a few miles.

No outbreak of disease had occurred on the works during the year, and the health of the men had been generally good.

*Galop Rapids Canal (West).*—These works are at head of canal some three miles West of Cardinal, and are under contract to Messrs. A. E. Cleveland & Co.

A large body of men are at work there, and the contractors have taken every sanitary precaution in the interest of their employees, the married men having comfortable detached houses, with water closets and baths, the single men being well housed and cared for, in two large boarding houses.

Necessary accommodation is at hand in case of an emergency, and medical officers, and a permanent hospital, are within telephone call.

No threatened outbreak of disease has ever occurred at these works, and the health of the men has always been good.

*Trent Canal, Section No. 2.*—These works are near the village of Kirkfield, Ont. and are under contract to Messrs. Larkin & Sangster.

At the time of my visit, I found about 225 men employed, a number of them being Canadians living in their own surrounding homes, or boarding with private families.

The contractors provide a boarding house, but only a few of the men avail themselves thereof.

Tents and buildings are on hand to be used as hospital accommodation in case of an emergency.

The boarding-house and other quarters occupied by the Canadian employees, are kept in good sanitary condition.

A large number of the men employed are Italians, who live in shacks erected by themselves, outside the jurisdiction of the contractors, and these are generally dirty and badly ventilated.

There had been no cases of contagious disease up to the time of my inspection, and the employees (Italians included) had been in fairly good health.

The works are under the medical charge of John McKay, M.D., whose report is as follows, viz.:—

WOODVILLE, ONT., Oct. 29, 1902.

DEAR SIR,—I beg to inclose you my report as medical officer to the men employed on Trent Canal, sec. 2, for the past year:—

There were on the works an average of 200 men, of whom two-thirds were Italians. The number varied from day to day, as men were continually coming and going. Many of the Canadian workmen are farmers living in their own homes; others lived in private houses and only a few lived in the company's boarding house.

The quarters of all such were, from a sanitary point of view, all that could be desired.

The Italians lived in their own shacks, generally filthy and always ill-ventilated.

Their bill of fare is the very simplest, consisting almost altogether of the everlasting macaroni boiled in water. When dinner is not macaroni, it is loaf bread washed down with cold water, and nothing else in addition.



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I am bound to say in spite of this meagre diet, the large majority of Italians look well nourished and are in fairly good health and can stand work about as well as the Canadians.

I take pleasure in being able to report that there has not been a single death yet on the works, there has not been an accident worth reporting, not a bone has been broken the last year.

This fortunate condition of affairs I attribute largely to watchfulness of the contractor on the ground, Mr. Sangster, whom I frequently heard admonishing his foreman to take every precaution to guard the lives of his men.

There has not been a case of small-pox, diphtheria, scarlet fever, nor measles, the last year, and only one case of typhoid fever, in a Canadian, treated in his own home.

Still there are many cases of bruises, contusions, abrasions and minor injuries requiring treatment.

There are also a great many cases of colds and influenza.

Many of the Italians suffered in addition to the above with stomach and intestinal troubles, diarrhoea, &c., chiefly due, I fancy, to want of variety in their diet.

Permit me to point out that the company's boarding-house is about the only quarters the board of health can inspect, as the law stands.

I would also submit that in a case like the Trent Canal, passing through a thickly settled country, with villages every few miles, there is little necessity for so many hospitals as the regulations demand. When necessity demands it a hospital can be improvised on short notice.

I would also point out that 50c. per month is quite inadequate for attendance and medicine, for men working with machinery and explosives, it should not be less than 75c. per month.

Men who pay a fee, sick or well, are sure to require a great deal of attention for fancied if not for real diseases.

All of which I beg leave to submit.

JOHN MCKAY, M.D.,  
*Medical Officer.*

*Trent Canal, Section No. 3.*—These works are near the village of Gamebridge Ont., and are under contract to Messrs. Brown & Alymer.

I found from 125 to 150 men employed thereon at the time of my visit, a number of whom are boarded and lodged in quarters provided by the contractors.

The sanitary condition of the camp and the sleeping and eating quarters were good, and the sanitary condition of the Italians, who lodge and board themselves, seemed to have improved since my former visit to the works.

There has been no outbreak of disease and the health and condition of the men was satisfactory. Hospital accommodations are provided, and the medical supervision of the works and employees is under the charge of A. Grant, M.D., whose report to me for the year to date I append as under:—

BEAVERTON, October 30, 1902.

DEAR SIR,—I have the honour to submit my report respecting section 3, Trent Canal works, during the year ending October 31, 1902.

There is an average of 125 men on the works.

Their lodgings are quite comfortable, and board good.

The sanitary condition of the English portion of the men is good, and that of the Italians steadily improving.

The health of the men was fairly good.

There was only one case of contagious disease (typhoid fever), which was an importation.

Also a number of cases of bronchitis, pleurisy, diarrhoea, &c., two of erysipelas, and a few minor accidents.

Hospital accommodations are comparatively good.

I have the honour to be, sir, your obedient servant,

A. GRANT, M.D.



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*Welland Canal.*—These works are at and near Port Colborne, Ont.

A large number of men are employed thereon, and the Health Act regulation sare being fairly well carried out by the contractors.

There had been no serious outbreak of disease on the works, and the health of the men has been all that could be desired.

Temporary hospital accommodation provided, and a permanent hospital within a reasonable distance.

## RAILWAYS.

Public works of this class have been carried on in the two extremes of the Dominion, but to a greater extent in Manitoba, the North-west Territories and British Columbia, all of which have added considerably to the already extensive railway mileage of Canada, and have opened out a large tract of fine farming land for immediate settlement, and which is being fast taken up by first-class emigrants, many of them being from the United States, and having considerable means.

In Cape Breton the roads being built there run through fairly settled districts, but will greatly assist in opening out mining and other enterprises which are developing in that section, and which are likely to prove of considerable value and importance to the Dominion of Canada in the near future.

*Canadian Pacific Railway.*—This company have had under construction during the past twelve months, nine branches or extensions to their lines in Manitoba, the North-west Territories and British Columbia.

Having visited all these in my official capacity, I am pleased to say that at that time I found the regulations under the Public Works (Health) Act, 1899, being well and carefully carried out, excellent hospital accommodation provided, the men comfortably housed in tents or buildings, and well fed, the camps and quarters kept in good sanitary condition, and excellent medical supervision by a duly qualified physician in each and all of said works.

With one or two exceptions there had been no outbreak of contagious disease, and the health of the men was and had been excellent.

I give below the extent of these various works, and append thereunder a report thereon, lately received from the medical officer of each.

*Field Cut-off. (From Field to Ottertail in British Columbia.)*

This work was under contract to Messrs. J. W. Stewart & Co.

About 250 men were employed thereon.

A. W. Tanner, physician and surgeon, now of Moosomin, N.W.T., was in charge, and his report thereon follows:—

MOOSOMIN, N.W.T., July 31, 1902.

DEAR SIR,—As required by the regulations for the preservation of health on public works, I herewith inclose you a report *re* health on Canadian Pacific Railway construction at Field, B.C., October, 1901, June, 1902.

J. W. Stewart, Esq., contractor.

A. W. Turner, M.B., surgeon.

*Extent of work.*—Seven miles, being a new line following the Kicking Horse River from Field to Ottertail, with the purpose of improving the grades over the Ottertail hill.

*Character of work.*—Heavy rock work and heavy earth work, requiring the use of large quantities of dynamite and black powder.

*Number of men employed.*—Varied from 150 to 450.

*Number of camps.*—Four, all of which were well built log houses, giving ample accommodation for the men, and being supplied with stoves, windows, ventilators, &c.



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*Character of labour employed.*—Mixed, English speaking and foreigners, the latter being Swedes, Austrians and Italians.

*Hospital.*—A board and tar paper building, double walls, dimensions 40 feet by 20 feet, accommodation for eight patients, which could be increased readily if necessary.

*Surgeon.*—A. W. Tanner, M.B., (Toronto University), Licentiate College, Physicians and Surgeons of British Columbia, Licentiate College Physicians and Surgeons, Northwest Territories, resident on the work and distant not more than three miles from farthest camp.

*Hospital Management.*—An attendant was on hand at all times, acting as nurse. Patients on admission were bathed and furnished with clean clothes. As a result of this the hospital was always clean and in good shape.

*Number of patients treated.*—82 in hospital and many in the camps.

*Cases of contagious disease.*—One case of measles. Small-pox was never in any of the camps, although it was prevalent in the camps of other railway construction in British Columbia.

Labour pneumonia was observed more than any other acute disease,—of this there were twelve cases with one death.

Inflammatory rheumatism furnished four patients.

La grippe was fairly prevalent.

Pulmonary Tuberculosis—one case. This was not developed on the work, but brought in. Venereal disease was rare, and was as a rule imported.

*Accidents.*—There were three serious accidents from explosives, &c.

1. Louis Johnson (foreman), had a premature explosion of a small charge of dynamite and lost one eye as a result.

2. John Hunter (labourer) had a similar accident a few days later and lost his right arm below the elbow.

3. Patrick Griffiths (labourer) undertook to clean out a hole which had been loaded with dynamite and had not exploded, he used a pick and the charge exploded in his face,—he lost both eyes.

These were the only serious accidents, and in all cases they were the result of the men's own carelessness.

Other accidents consisted of one broken leg, one broken arm, broken fingers, sprains, twists, cuts and bruises.

The only death was that of Henry Watson, April 29, 1902, acute labour pneumonia, both lungs, died 5th day of exhaustion. The medical work on this contract was under the direct control of Mr. J. W. Stewart, contractor for the work from the C.P.R.

All of which is respectfully submitted.

A. W. TANNER, M.B.,

Surgeon for J. W. Stewart, Field, B.C.

*Kootenay—Arrowhead Extension.* (From Lardo to Gerrard in British Columbia.)

Only a comparatively small number of men were employed on this work, and no physician was necessary under requirements of the regulations, notwithstanding which, a regular qualified medical officer, Dr. Hartney, was in charge, and sanitary conditions were well looked after.

*Yorkton Extension.* (From Yorkton North-westerly, about 33 miles.)

This work was under contract to J. D. McArthur.

Number of men employed varied from about 100 to 300.

Medical officer in charge was W. S. Macdonald, M.D., whose report on the year's work follows:

YORKTON, October 26, 1902.

DEAR SIR,—I have been employed by the C. P. R., especially to look after the men on construction here. Am not attempting to do work in any other division. Dr.



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Irving and I have our offices together, so they are nearly always sure of securing someone.

There are about 200 men now employed at track laying. The contractor's men whom I attended, have finished grading, and gone.

There have been no infectious diseases whatever here, and the men are living under the best possible sanitary conditions.

We have an hospital in Yorkton which is endowed by the C. P. R. for maintenance, and I have been instructed by the superintendent of construction to take men who are in need of hospital attendance there.

Yours truly,

W. T. MACDONALD, M.D.

*Pheasant Hill Extension. (From Kirkella, Man., 110 miles north-westerly, to Pheasant Hills, Assa.)*

Contract let to Messrs. Foley Bros., Larson & Company, of Moosomin, N.W.T.

Number of men employed, about 500.

There were two cases of small-pox in this district, patients were immediately isolated, quarantine enforced, and no other cases developed.

Two physicians have had medical supervision over the men, A. T. Condell, M.D.C.M., and A. W. Tanner as chief surgeon, whose report on the work follows:—

MOOSOMIN, N.W.T., October 25, 1902.

DEAR SIR,—In regard to health on Pheasant Hills extension of C.P.R., from Kirkella, Man., north-westerly to Pheasant Hills,, Assa., I beg to report as follows:—

Work commenced May 12, 1902, and is at time of writing about finished, will probably be finished Nov. 1, or during first week of November, 1902.

Number of men employed never exceeded 600, and was usually about 450 to 500.

Camps were tents, and as the work was light, no camp was ever longer in one place than 4 to 5 weeks.

*Hospital accommodation.*—Tent, 18 x 30 feet, with a fly stretched over it,—tent floored and walled up at the sides.—beds 6 in number, the constant attendance at hospital as nurse, &c., a young medical student (2 years' experience). Hospital moved from time to time, to be as centrally located as possible.

*Sickness.*—Shortly after May 12, a man who had come in from Winnipeg, was discovered to be suffering from small-pox of a mild form. Isolated and camp quarantined May 20. Four other camps also quarantined May 20.

Dr. Patterson examined the patient and pronounced it small-pox.

A second case developed in the same camp as furnished the first.

Quarantine removed June 13, no further cases.

No other cases of any infectious disease whatever observed during the summer.

One death—August 14, 1902—Benj. Chrispen, perforation of vermiform appendix with acute peritonitis.

No accidents with explosives, one badly broken leg, close to ankle, and one broken collar bone, only accidents observed and treated in hospital.

Two cases acute rheumatism, several cases of tonsillitis, no typhoid fever.

Freedom from disease I attribute to the fact that camps were never long in one place.

I have the honour to be, sir

Your obedient servant,

A. W. TANNER, M.B.

*Forrest Extension. (From Forrest, Manitoba, westward, tracklaying 10 miles, ballasting 42 miles.)*

About 175 men were employed.

There was one case of small-pox, and one of typhoid fever at the works, both of which were isolated, quarantine enforced, and no further cases developed.



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Medical supervision was under charge of A. T. Condell, M.D., of Brandon, who also had charge of the three following extension works, viz.: Snowflake, Brookdale, Waskada, whose report covering the four extensions, follows the last named :—

*Snowflake Extension.* (From Snowflake, Man., 10 miles southeasterly.)

Number of men employed about 150 to 175.

There were three cases of typhoid fever, four on these works, which were taken to Winnipeg for treatment.

Dr. A. T. Condell was medical officer of these works.

*Brookdale Extension.* (From Wellwood, Man., to 10 miles west.)

The number of men employed here were the same as at Snowflake, they having been transferred.

There were no serious diseases that I know of.

The same medical officer, Dr. Condell, was in charge.

*Waskada Extension.* (From Waskada to 20 miles west.)

Number of men employed ran about 200.

There were some cases of fever on this work, which were taken to Winnipeg for treatment. Dr. Condell was also in charge of this extension, and his report covering this and the three preceding ones is as follows :—

BRANDON, MAN., October 29, 1902.

DEAR SIR,—Herewith I beg leave to submit my report of the health and condition of men on the Forrest, Brookdale, Snowflake, and Waskada extensions of the C.P.R.

*Forrest Extension.*—On this extension from 180 to 200 men were employed.

The general condition and health of these men was excellent.

Very little disease and few accidents occurred.

The government regulations were closely observed by the officers in charge, and the instructions of the department carefully carried out.

Attention was given to sanitation, pits were dug, and garbage and refuse buried, and as camps were frequently moved, no contamination resulted.

Cases of sickness were immediately reported, and transportation or isolation effected at once.

Inspection, cleansing, purification and disinfection were closely looked after.

Brandon hospital being easily accessible, was used as a base hospital.

Isolation in one case of small-pox, was made by means of a sleeping car, specially fitted up and set apart in a lonely spot, and an experienced nurse attended patient.

Quarantine was removed at proper period, and after most thorough disinfection.

No further cases developed either among the men on construction, or among the people in the neighbourhood.

No cases of death from disease took place on this work.

There were a few cases of acute gastritis, some cases of diarrhoea of a transient character, later one case of bronchitis and one of pneumonia.

Recovery was early and complete.

One case of typhoid fever was isolated, and no spread of disease was seen.

A few cases of rheumatism were met with, and among the Italians one case of eczema, and one of tinea sycosis.

Accidents were few, and with the exception of the Kinto bridge accident, not serious. Here, however, five men were injured, two of them fatally, while the other three made uneventful and rapid recovery.

Another workman received a compound comminuted fracture of bones of left leg, the day they were leaving Forrest.

There were some slight injuries from jumping off moving flat cars, and from falling timbers, ties and rails.

A few slight injuries from handspikes, pit arms and hammers, proved simple and soon healed.



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*Snowflake Extension.*—Here the same requirements were met, and the same conditions fulfilled, as in the Forrest construction. Owing to care in deposit of refuse, and frequent moving of camps, little infectious disease, and no epidemic occurred.

The district afforded little water that was good, and on this account some gastric and intestinal trouble was complained of. Severe cases were taken into Winnipeg General Hospital.

Three cases of typhoid fever went to Winnipeg. The other cases of sickness were of a trivial character.

One workman on pioneer car got mixed up with the trams and sustained a fracture of the tibia, a deep wound on inner aspect of the arm and some scalp wounds. He was taken to Winnipeg General Hospital, and resumed work in about ten weeks.

The number of men employed in construction at Snowflake was from 170 to 180.

The interior and exterior arrangements of the boarding cars and sleeping quarters were carefully looked after and satisfied the demands of the department.

Cases of accident and sickness were well attended to by officers in charge, and transportation, where necessary, was expeditious.

*Wellwood (Brookdale) Extension.*—The men on construction at Snowflake, together with their outfit, were transferred to this extension.

Splendid weather, excellent locality, and an early completion of the 10 miles of track combined to have little sickness or accident on this work.

Favourable conditions and hygienic precautions seemed to keep the men in first class condition.

Being near Brandon, that hospital was used for one case, which was the only one developing at Wellwood.

This was a case of tonsillitis which, as diphtheria had been in the district last year, we removed early to hospital. No further cases were known.

There were no accidents reported while this work was under construction.

*Waskada Extension.*—The number of men employed here varied from 150 to 240.

Arrangements were made for transference of emergency cases to private hospital in Deloraine. Other cases were taken to Winnipeg.

No deaths occurred on this construction. The general health of men was good. Very little sickness was experienced.

A few cases of fever were sent to Winnipeg. Poor water produced some slight trouble of alimentary tract, but nothing serious developed.

The men here, with their boarding and sleeping cars, were the same that constructed Forrest extension, and the same conditions were observed.

Those in charge exercised careful supervision of the cleanliness of the camp and of the health and comfort of the men.

No epidemics occurred

A few slight accidents happened, one workman was struck in the hip with a pick-  
arme, another was squeezed with two sticks of timber, but these injuries were slight and soon recovered from.

During the work on these four extensions, passing through several months, with differing seasons and varying climatic conditions, and with the employment of some hundreds of men, not a single death from disease occurred.

The instructions of your department were in the hands of the officers of the company, and they at all times evinced a willingness and eagerness to carry out those instructions.

The fullest assistance was given the medical officer in the discharge of his duties.

In cases of accident every facility at their disposal was placed for comfort or convenience of the injured, and their constant solicitude for the well-being of the camps is commendable.

I have the honour to be,

Yours faithfully,

A. T. CONDELL, M.D.



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*Selkirk Extension. From West Selkirk northward, 26 miles.*

This work was almost completed on my arrival there, and only a few men were then employed.

A few cases of small-pox developed here early in the season, when a large gang of men were employed, but such cases were at once isolated, quarantine enforced, and there was no spread of the disease.

The regulations under the Public Works (Health) Act, 1899, had apparently been carried out since the commencement of the work, and were being complied with at the time of my inspection. Dr. Ross was the medical officer in charge on behalf of the Canadian Pacific Railway Company, and Dr. Irving, whom I saw personally, was attending at that time to some minor cases during the absence of Dr. Ross.

*Canadian Northern Railway.*—This company, under Messrs. Mackenzie, Mann & Co., contractors, have had under construction during the past year five extensions to their lines in Manitoba and the North-west Territories.

Having visited and inspected each of the said works, I may say that I then found the regulations under the Public Works (Health) Act, 1898, being most carefully fulfilled, the hospital accommodation provided being fully up to the requirements, the men being supplied with excellent food and comfortably housed, the sleeping and dining quarters and the various camps being kept in very good sanitary condition, and each of the works having careful medical supervision by a duly qualified medical officer each of whom was under the charge of R. MacKenzie, M.D., of Winnipeg, as the contractor's chief medical officer, who gave me every assistance towards my making the necessary inspections.

There were no contagious diseases at any of these works, with the exception of two cases of measles and one of scarlet fever, and the general health and condition of the men was excellent.

The extent of these works and the reports received from the medical officers of each will be found below, viz.:—

*Erwood Extension. (From Erwood, Saskatchewan, N.W.T., to a point about 100 miles west.)*

Number of men employed at time of my visit was about 600.

The eight camps along this line of construction were under canvas, but at the headquarters camp at Erwood there were well constructed log buildings, one of them being a well-fitted out hospital, with accommodation for 16 patients, another and separate building being the office dispensary, well supplied with medicines, &c., and the quarters of the resident medical officer.

The said officer in charge was A. H. Crawford, M.D., whose report up to date, follows:—

ERWOOD, N.W.T., Oct. 30, 1902.

SIR,—I beg to submit to you the medical report for the six months, May to November, of the work on the Canadian Northern Railway from Erwood west.

At Erwood there is a large, bright, well ventilated hospital, office and dispensary separate, built on the high bank of the river, accommodating 16 patients, iron beds, springs, mattresses, &c.

The camps were all under canvas and all sanitary precautions were taken.

No overcrowding in sleeping accommodations.

The food was of excellent quality, well cooked and plentifully provided.

The number of men varied from 800 in June to 300 in October.

There was very little sickness, eleven patients being treated in the hospital, all of minor importance.

The general health of the men was remarkably good.

Which report is respectfully submitted.

Your obedient servant,

A. H. CRAWFORD, M.D.



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*Grandview Extension. (From Grandview, Man., to about 100 miles west.)*

About 400 men were employed thereon.

The several camps along this work were all under canvas, with specially fitted cars for various purposes at the Grandview headquarters.

The resident medical officer was Geo. D. Shortreed, M.D., whose report on the work of the year follows :

GRANDVIEW, MAN.. October 13, 1902.

DEAR SIR,—I beg leave to submit a brief report for the season.

The camps have been visited regularly once a week. I have just returned from my thirteenth trip through them.

The health of the men in the camps has been exceptionally good.

There have been few serious cases of illness, and no fatalities.

There have been no cases of infectious diseases, except one or two of measles, and one of scarlet fever.

The last month, I had two cases of appendicitis, both of whom were sent to Dr. Mackenzie for surgical treatment if necessary.

There have been no accidents of a serious nature, and very little surgical work.

The hygienic conditions seem to have been carefully looked after.

Hoping that this brief report may be satisfactory,

I remain, your obedient servant,

GEO. D. SHORTREED.

*Beaver Extension. (From a point north of Beaver, Man., to Neepawa, Man., a distance of twenty-seven miles.)*

About 300 men were employed.

The camps were under canvas, as is customary, with some specially fitted cars at headquarters.

The health and condition of the men were excellent, the camps in a sanitary condition, and I heard of no serious diseases at time of my visit.

J. W. Leech, M.D., of Neepawa, was the resident medical officer.

*Neepawa Extension. (From Neepawa, Man., to McCreavy, Man., a distance of thirty-three miles.)*

About 350 men were employed on this work.

The conditions as to quarters and health of men were similar to those on the above Beaver Extension.

The medical supervisor in charge of this work was also Dr. Leech, of Neepawa.

*Carman Extension. (From a point eleven miles west of Carman to about nine miles further.)*

About 100 men were employed, which was near the maximum, during this construction.

There were no contagious diseases, and health and conditions were good.

The resident medical supervisor was W. M. Pint, M.D., M.C., of Carman, whose report is added below :—

CARMAN, Man., Oct. 20, 1902.

SIR,—On construction of Carman extension

*Camps.*—The bridging, construction and grading camps, have been in a thorough health condition.

No infectious disease having made an appearance.

Board was I think unusually good, as I have had meals on several occasions, (sitting at the ordinary tables with the labourers.)

*Lodging.*—Appeared to be adequate, and in clean and tidy condition.

*Health.*—Health of nearly all appeared above usual.



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*Accidents.*—There were quite a number, though of not great moment, such as bruises, scalds, cuts, with an occasional furuncle or abscess.

*Diseases.*—None that were infectious or contagious, a number of cases due to over-eating, diarrhoea, rheumatism, colds, &c.

The accommodation, when there were sick, was good, and each foreman always insisted on the patient retiring from work entirely, until able to resume it with satisfaction.

The foreman also spared no trouble to get medicine to patient, if I had not it with me at the time.

Number of men engaged on construction, varied greatly, even in the bridging and grading gangs, and I could not make anywhere near an accurate estimate, but think there were as low as 50 and as high as 100 men.

WM. M. PINT.

*Prince Edward Island Railway.*—This is a branch from Charlottetown to Murray Harbour, of about 48 miles, and is being built by the Dominion Government.

The contract is let to Mr. Willard Kitchen, whose headquarters are at Murray River, P.E.I.

The health and conditions of the men have been well looked after from the start of operations, and there has never been any contagious disease among the employees.

Patients from any of the camps are always looked after by the nearest physician in charge of said camp.

Many of the men reside in their own houses, or board with surrounding families.

Dr. W. R. Coles, of Murray River, has had general supervision over the works on behalf of the chief contractor, and his report thereon follows in full :—

MURRAY RIVER, P.E.I., October 28, 1902.

DEAR SIR,—*Re* sanitary condition of boarding houses and surroundings where the men who are working on the Murray Harbour Branch of P.E.I. Railway are quartered.

Willard Kitchen, the contractor, does not board any of the men, but the sub-contractors, of whom there are several, board and lodge their men.

I have had occasion to visit these boarding houses, and find them in a satisfactory condition.

I may also state that a great number of the workmen board and lodge at their own homes.

There have been several accidents, principal among them being one broken thigh, attending physician being Dr. J. F. Martin, of Eldon, one shattered forearm, attending physicians being Drs. J. A. C. Rodgerson and Martin Martin, one bruised leg, caused by cart wheel passing over it, one sprained foot and ankle from earth falling on it, these cases being attended by myself.

The accidents have been conspicuous by their rarity.

No cases have been treated in hospital.

There are good hospital facilities at Charlottetown, which is from eighteen to forty miles from the respective boarding houses.

There have been no outbreaks of contagious diseases, and typhoid fever is also unknown.

This report is not very extensive, but I trust that it will contain all you require.

Yours very truly,

W. R. COLES.

*Halifax and South-western Railway.*—The contract or proprietorship of this line is in the hands of Messrs. Mackenzie, Mann & Co., of Toronto.

The only portion connected therewith, at present under construction, is known as the New Germany and Caledonia branch, some fifteen miles.

Work on this branch has only lately been commenced, there being about 100 men employed, and all in good health.



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Hospital accommodation is within reasonable distance, and the regulations under the Health Act, 1899, are being fulfilled as far as necessary up to the present.

The headquarters of the work and the engineer in charge, are at Bridgewater, N.S.

The medical officer in charge of the said work is W. H. Cole, M.D., whose report here follows :—

CALEDONIA, QUEEN'S Co., October 29, 1902.

DEAR SIR, —Referring to the employees of the Halifax and Southwestern Railroad, whom I have under my professional care, I beg to report the number at about one hundred, and all in good health at the present time.

There has been no serious illness or accident among them thus far.

The sanitary conditions of the different camps have had my careful attention.

There is no hospital accommodation here as yet, nor has there been any need for any up to the present time, though one cannot tell what a day may bring forth.

In case of serious sickness or accident, it would be very desirable to have suitable quarters provided, where patients might receive proper nursing and treatment.

I have nothing further to report.

Kindly advise how often these reports are required.

Yours faithfully,

W. H. COLE,

*Physician to Halifax and South-Western R.R., New Germany and Caledonia Branch.*

*Inverness Railway and Coal Co. (From Point Tupper, Cape Breton, to Eastern Harbour, C.B., including a shipping pier at Port Hastings, C.B.)*

The work at present under construction is the coal shipping pier and its approaches.

About 150 men were employed thereon, and there had been no serious disease in connection therewith. The men are not housed by the company or contractors, but board in the surrounding village, or live in their own homes.

Hospital accommodation is at Point Tupper, within three miles by rail.

The medical officer in charge has been D. J. McDonald, M.D., of Port Hawkesbury, C.B., who was just leaving for England at the time of my visit and was to be succeeded by Dr. Howard McDonald.

I embody below a report from the chief engineer, who has been in charge of the work since commencement :

PORT HASTINGS, C.B., October 29, 1902.

DEAR SIR, —As to the general health and condition of the men engaged on the coal pier being constructed at this point in connection with the Inverness Railway and Coal Co., I beg to submit the following statement :—

Work began on the pier and approaches about June 15, and has been carried on continually since.

During that time there have been engaged from one to two hundred men per month.

Until the end of September, Dr. D. J. McDonald, of Port Hawkesbury, was our regular physician, and since then Dr. Howard McDonald, of Port Hawkesbury, has occupied the position.

I have been constantly on the work during the summer and know thoroughly the conditions which have existed from a sanitary standpoint.

I am happy to say that we have had no sickness on the work, and only one slight accident, by which one of the men had his foot crushed and one small bone broken.

All the men board in the village at regular boarding houses and a great number of them live at their own homes.

There is an hospital at Point Tupper should one be required, but fortunately we have had no cause to use it.

The work is now nearing completion and not more than fifty men are at present engaged.

ANGUS SINCLAIR,

*Chief Engineer.*



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*Cape Breton Railway. (From Port Hawkesbury, C.B., to Louisbourg and Sydney, C.B.)*

About 300 men were employed, among whom there had been no serious disease.

The men were housed in shacks, the sanitary conditions of which were fairly good.

The headquarters camp was at Port Hawkesbury, and regulations under the Health Act, 1899, were being carried out.

The hospital accommodation for this work is at Point Tupper, close by.

P. A. Macdonald, M.D., superintendent of the hospital, is the medical officer of the work, and his report thereon follows :—

PORT HAWKESBURY, C.B., October 29, 1902.

DEAR SIR,—There have been about 450 men employed on the Cape Breton Railroad at times, but at present there are only about 150.

The prevailing diseases during the year were bronchitis and pneumonia, from which there were no deaths.

One man aged 72 died of gastro-enteritis, another was maimed by a premature explosion of a blast, whereby he lost the sight of one eye, and several received incised and contused wounds, but made good recoveries.

The employees lived in shacks, which are fairly comfortable, and some lived in their own homes.

The manager is particularly kind and attentive to the men when ill or injured.

Your obedient servant,

P. A. MACDONALD.

#### BRIDGES.

There are only two works of this kind being constructed at present, as far as I have been made aware, that come under the regulations of the Public Works (Health) Act, 1899. They are as under :—

*The Quebec Bridge.*—This is being constructed from Quebec to Point Lévis.

A large body of men are employed, but they board and lodge with surrounding families.

Their health has been excellent and no contagious diseases developed.

Hospital accommodation is provided in the city of Quebec, and medical supervision is in force.

*The Hillsborough Bridge.*—This is being constructed from Charlottetown, P.E.I., and is to form the connection for the Murray Harbour Branch of the Prince Edward Island Railway.

It is being built by the Dominion Government, under contract to Mr. M. J. Haney, who also has a contract for a large wharf at Charlottetown.

Some 500 men were employed thereon, who were being well looked after as to board, lodgings and sanitary conditions,

Splendid hospital accommodation is provided at Charlottetown, and the men are taken charge of there, when necessary, at the expense of the contractor.

The health of the men has been good and no contagious or infectious diseases have developed among them.

Dr. P. Conroy, of Charlottetown, is the medical officer in charge of the men employed on the works, and a short report from him to date, follows :

CHARLOTTETOWN, P.E.I., October 27, 1902.

SIR,—I beg leave to report that I have been in attendance upon the men employed on the construction of the Hillsborough Bridge near this city, and that the said employees have had every medical, surgical and hospital accommodation suitable to their needs.

The city hospital affords up-to-date accommodation for a large number of patients, and arrangements are made whereby all the injured or sick employed on the bridge construction are freely admitted.



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The injuries received by the men are those usually encountered in those engaged in the performance of a large work, with an additional large number of cases of the peculiar caisson disease.

The general health of men has been excellent, no contagious or virulent disease being found among them.

I have the honour to be, sir,

Your obedient servant,

P. CONROY, M.D.

## MINES AND WORKS OF OTHER PUBLIC COMPANIES.

Of the works under this class I have only to report on five, but there are no doubt others, of which no notice has been sent to you, as required by the regulations.

*Payne Mines.*—These mines are situated near Sandon, B.C.

During the past year, a very considerable amount of construction work has been done in renewing tramways, erecting concentrator, completing water power and putting in electricity.

A considerable number of men have been employed thereon, who were comfortably housed and well fed by the company.

The sanitary regulations and health of the men were all that could be desired.

A miners' hospital and medical officer are close at hand in the town of Sandon.

*Consolidated Lake Superior Works.*—These are the works carried on by the Clergue Syndicate, at Sault Ste. Marie, Ont.

During the past twelve months construction work on the Algoma Central Railway and its branches has been about completed for the present, a street railway has been laid down through the town, telegraph lines have been constructed, steel rail works have been put in operation, pulp and paper mills built, and other works are contemplated or in progress.

A very large body of men are employed in the various enterprises.

The regulations under the Public Works (Health) Act, 1899, are carried out to the fullest extent.

There are two or three hospitals provided by the Syndicate, in connection with different works.

The health of the employees has been excellent and several medical officers are employed to supervise them at various points.

*The St. Anthony Lumber Co.*—This company have large lumber camps in the neighbourhood of Whitney, Ont., and were constructing a logging railway of some considerable length.

In June last, the Director General of Public Health received a complaint from the secretary of the Ontario Board of Health, that the regulations under the Public Works (Health) Act 1899, were not being carried out on said works.

On this being communicated to me, I immediately started for said works and on arrival inspected the same, but found no cause for the complaint.

There were 500 or 600 men employed in both the lumber and railway camps.

The railway construction was under contract to Mr. W. R. McQuigge.

The men were boarded and lodged by the company, were comfortably housed and well fed, and the camps kept in a good sanitary condition.

All necessary hospital accommodation was provided and medicine supplied.

There had been seven or eight cases of small-pox in the two camps and one of measles in the railway camp, but these were isolated and quarantine enforced, so that there was no further spread of these diseases.

The health of the men generally was good.



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T. C. Bourns, M.D., of Whitby, was the medical officer in charge of the camps, and I append the following from him thereon up to date :—

WHITBY, ONT., October 25, 1902.

SIR,—During the previous twelve months, the St. Anthony Lumber Co., Limited, employed in lumber camps about 300 men and the logging railway construction about 200 men.

The railroad was built by W. R. McQuigge, for the St. Anthony Lumber Co., of which E. C. Whitney is manager.

We had in lumber camps four cases of small-pox, all of which were mild; and in railway camp three cases of small-pox and one of measles.

There was a hospital for contagious diseases in connection with each lumber camp, and two hospitals for contagious diseases in connection with all the camps for the railroad, one of which was used till disease was diagnosed and the other for treatment.

The greatest care was given to keep the cases isolated and thorough disinfection was pursued.

We had no severe accidents in either works, nor was there much other sickness.

The company furnished board and lodging for all these men, who were not overcrowded, the dining-room and cookery being in all cases separate from the sleeping camps.

I visited all the camps frequently, and the drainage and ventilation was good.

Fresh meat and vegetables were used in all camps, and water was obtained from either springs or wells, no water from swamps or dead water (dammed lakes or streams) being used.

I remain,

Yours very truly,

T. C. BOURNS, M.D.

*Intercolonial Coal Mining Co.*—The mines and works of this company are situated at Westville, N.S. The mines are well ventilated and the employees well housed. Permanent hospital accommodation is at New Glasgow, about five miles distant. The health of the men is good, and all necessary provision has been made for their comfort. Three medical officers are directly connected with and have supervision over the men and mines.

*Dominion Coal Company.*—This company, in addition to their coal mines and works, own and operate the Sydney and Louisbourg Railway, covering about forty miles in length.

A very large body of men are employed, and the health regulations as carried out are of the very best and cover all the requirements of the regulations under the Public Works (Health) Act, 1899.

Several medical officers are employed by the company, but R. A. H. MacKeen, M.D., has had the most general supervision over the men employed, and I give below a report from him covering the past twelve months, and which gives full information thereon :—

GLACE BAY, N.S., October 27, 1902.

SIR,—In reference to the conditions under which the employees of the Dominion Coal Co., Ltd., live and the provisions made for their welfare, with the general effects on their health and well-being, I beg to report as follows :—

There are employed by the company about 6,500 men and boys, of these about 5,000 are engaged underground, and the balance in various capacities on the surface.

A large and increasing number have their own cottages with more or less ground surrounding them.

The company provides houses which are rented to their employees at a moderate figure, of these some are old but fairly comfortable, while others are of modern construction and of the better class of tenants.



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The large number of men employed and the amount of machinery in use entails the inevitable number of accidents incidental to work of such magnitude.

Many of these accidents are due to workmen growing careless of their own safety and incurring needless risks.

For the handling of cases of accidents the different collieries are provided with stretchers for carrying injured men to the surface, and ambulances are at hand to convey them to their homes or the hospital as they may elect.

The medical men are also connected by telephone with the works and are immediately notified if an accident occurs.

The first provision in the way of hospitals was made by the company in 1901, when an emergency hospital was provided by the company.

We now have in a central location St. Joseph's hospital, built by contributions from the workingmen and private citizens, supplemented by a substantial donation from the Dominion Coal Company.

This building is of brick, with accommodation for about 60 patients and is fitted in every way in the most modern style.

By a small monthly contribution a man is entitled to free attendance and nursing in this institution, and if not a regular subscriber may have the full benefits for \$3.50 per week.

The general health of the community is good considering the population.

One year ago we had quite an epidemic of typhoid fever in Glace Bay due to bad water. This year there have been very few cases, generally of a mild type, and in a short time we will have a water system completed which will give us a plentiful supply of water which should be perfectly free from contamination.

Boards of health appointed under the provincial laws govern sanitary matters at all the collieries, and prompt measures are taken to stamp out infectious diseases when they make their appearance.

Yours truly,

R. A. H. MacKEEN, M.D.

I may here draw your notice to the fact that medical and municipal officers in Manitoba, the North-west Territories and British Columbia, seem to have the opinion that attention to and care of cases of contagious diseases occurring among employees on public works coming under the application of the Public Works (Health) Act, 1899, should be paid by the Dominion Government.

I humbly beg to submit that I do not think that was the intention of the said Act, and there is certainly nothing in the regulations of the said Act to warrant such an opinion.

It might, therefore, be advisable to take into consideration this matter, with the view of amending said regulations to cover the same and perhaps other matters.

I deem it a great pleasure to have to again draw your attention to the general healthfulness and excellent condition of all classes of employees on public works coming under the application of the Public Works (Health) Act, 1899.

I have the honour to be, sir,

Your obedient servant,

CHAS. A. L. FISHER,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.







# HEALTH OF ANIMALS

No. 15.

REPORT OF J. G. RUTHERFORD, V.S., CHIEF VETERINARY INSPECTOR.

FROM NOVEMBER 1, 1901, TO OCTOBER 31, 1902.

OTTAWA, October 31, 1902.

SIR,—I have the honour to present my first annual report as Chief Veterinary Inspector for the Dominion.

Entering on my duties in February last my time has since been very fully occupied. as, in addition to the ordinary detail work of the office, it has been necessary for me to study closely the conditions relating to the various contagious diseases affecting animals in Canada and the means at my disposal for dealing with them.

Acting on your instructions, my first step was to assume executive control of the work of stock inspection and to take entire charge of the correspondence connected therewith. This change has, it need scarcely be said, added very considerably to the duties of the position but will, I think, as time goes on, be found to be a decided improvement on the methods formerly in use.

It is certainly a distinct advantage to the Chief Inspector, who is, very properly, held responsible for the effective performance of the work entrusted to him, to be in close touch with each member of his staff and to personally receive and deal with all professional communications and official reports.

In furtherance of your idea of centralizing the work at the Capital, I found it necessary to bring to Ottawa, Dr. Higgins, formerly Assistant Pathologist in charge of the Experiment Station at Outremont.

In view of the important part now played by the sciences of pathology and bacteriology in the diagnosis and control of animal diseases, it was deemed advisable to furnish proper facilities for this class of work. A very convenient and suitable laboratory has therefore been erected on the Central Experimental Farm. This building, which is now almost ready for occupancy, has been designed specially for scientific research into the nature and causes of animal diseases, more particularly tuberculosis. It is intended also in the near future to undertake the manufacture of tuberculin and other preparations of a like nature. As the services of a skilled pathologist are, however, constantly in demand by our inspectors and others, temporary quarters, pending the completion of the laboratory, were found for Dr. Higgins in the Imperial Building where he has during the past season done a very great deal of valuable research work in connection with several of our animal plagues, in addition to examining numerous specimens forwarded for diagnostic purposes.

Still further following out the plan of establishing a central bureau, I, with your approval, removed to Ottawa Dr. A. E. Moore, one of the veterinary inspectors of the department formerly stationed at Montreal. I have found his services invaluable during the past season, not only in visiting and dealing with outbreaks of disease and in the ordinary work of the branch, but as Acting Chief Inspector during my various unavoidable absences from Ottawa.

In March I met, in Toronto, a special committee appointed by the Dominion Short-horn Breeders' Association to discuss with me the question of quarantine regulations with special reference to the tuberculin test. This conference, I am pleased to state,



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resulted in the development of a better understanding among breeders as to the aims and objects of this branch of your Department, which has since been of great benefit to all concerned. Such meetings, if conducted in a proper spirit, cannot but improve the relations between owners of live-stock and officers engaged in a service specially organized to further and protect live-stock interests.

I deemed it advisable to attend the annual meeting of the Western Stock Growers' Association which was held in Macleod on April 10. At this gathering a number of matters of importance were discussed, among them being the treatment of mange in cattle. I found all those present fully alive to the importance of dealing promptly and thoroughly with this disease. After some discussion the following resolution was adopted :—

Moved by Mr. George Lane, seconded by Mr. A. McLean, 'That this association agrees to impress upon its members and all others concerned, the necessity for the prompt isolation and proper treatment of all cattle showing symptoms of mange, and further, to see that such measures are effectively carried out under the supervision, when such is found necessary, of the Government Veterinary Inspectors.'

I am pleased to be able to state that, from the latest reports in my possession, the ranchers are evidently doing their best to carry out its provisions.

The question of glanders was also discussed at this meeting and arrangements were made for a general inspection of range horses at the spring round-ups.

While on this trip I had an opportunity of discussing with the Commissioner of the North-west Mounted Police the whole subject of the control of contagious diseases of animals in the North-west Territories, this work forming one of the multifarious duties of that force. I cannot speak too highly of the very efficient and satisfactory service rendered, often under great difficulties, by the veterinary officers of the Police, and of the systematic manner in which reports are furnished by the Commissioner and his staff at Regina.

I am convinced, however, that owing to the largely increased settlement and the consequent addition to the duties of the live stock inspectors of the force, it will be necessary to immediately provide more veterinary staff sergeants qualified for this work. I am accordingly taking steps to induce several suitable men to join the force in the above mentioned capacity.

While in Winnipeg on my return journey I made arrangements with Dr. Torrance, of that city, authorizing him to undertake, in conjunction with Dr. Bell, provincial bacteriologist, an investigation into the nature and causes of the exceedingly fatal, recurrent, malarial fever which has for many years been causing great mortality in horses in certain districts of Manitoba and the North-west Territories.

In pursuance of the arrangement made last year between this Department and the United States Bureau of Animal Industry, Dr. A. G. Hopkins was, early in May, despatched to Great Britain as quarantine officer to submit to the tuberculin test cattle destined for export to this country. He had a very busy season, as will be seen from his report, and filled a trying and difficult position in a highly satisfactory and creditable manner.

During May an entirely new development in the import cattle trade demanded my attention. This was the introduction to the North-west Territories in considerable numbers of young cattle from Mexico, as also from Texas, Virginia and other southern states. As some of these cattle, particularly those from Mexico, were brought from south of the United States Texas fever quarantine line, I deemed it advisable to insist upon the production by all persons importing such cattle, of health certificates signed by officers of the United States Bureau of Animal Industry. As a further precaution, I issued instructions to our officers at western points on the international boundary, that all southern cattle should be carefully inspected by daylight, and that any showing signs of being infested with ticks should be refused admittance to Canadian territory.

This caution was necessary, because, while the ticks, which are the only source of contagion, could not possibly survive our northern winter, the disease might, if introduced during spring or summer, destroy thousands of cattle before the advent of cold weather.



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No bad results followed these importations, which were, I understand, very satisfactory from a business point of view.

In dealing with this matter I was greatly helped by the officers of the United States Bureau of Animal Industry, who with ready courtesy furnished all necessary information on the subject, and in other ways rendered valuable assistance.

Owing to the rapidly growing importance of the live stock trade it became necessary to make arrangements for a more frequent and thorough inspection of western stock-yards and cars than could possibly be undertaken by Mr. Auger, whose time is very fully occupied in looking after this work in the east. Mr. C. W. Peterson, of Regina, was therefore, with your approval, appointed from July 1st inspector of live stock yards and cars on all lines west of Winnipeg.

During the summer I visited Montreal for the purpose of familiarizing myself with the conditions relating to the inspection of stock for export. These I found very satisfactory, with the exception of the stock-yards of the Canadian Pacific Railway Company, which are not at all suitable for the requirements of the trade. Were it not for the fact that the company in question promises to erect new and commodious yards at an early date, I would recommend that steps be taken to compel the immediate improvement of those now in use.

I also inspected the quarantine stations at Point Levis, St. John and Halifax, notes in regard to which, as well as to the other stations visited, will be found in that portion of this report devoted specially to the subject of quarantine.

While at St. John I inspected the new stock-yards of the Canadian Pacific Railway Company, which are very commodious and well adapted for dealing with the large export cattle trade now carried on from this port at certain seasons.

The Intercolonial Railway is also improving its accommodation to a considerable extent.

Going from Halifax to New Glasgow, I met there Dr. Townsend, who is in charge of the inspection work in connection with Pictou cattle disease, and Dr. Pethick, of Prince Edward Island, who was also this season engaged in dealing with this troublesome malady. I discussed with these gentlemen the best means of carrying on a thorough investigation with a view to the discovery of some more satisfactory method of dealing with this disease than that now followed.

In August I attended an important and successful combination sale of Shorthorn cattle at Hamilton, Ont. A large number of animals were sold, which all were previously tested by our officers.

I arranged to meet Drs. Stubbs and Tennant at Hamilton on this occasion, as I found it necessary to consult them in regard to some questions which had arisen in connection with the work of testing cattle for export.

During this month I also visited Windsor, Ont., where, in company with Dr. Orchard, our officer there, I examined the methods of inspection and quarantine of animals entering the Dominion from the United States.

My next visit was to Sarnia, where, with Dr. Brown, the officer of the department at that point, I made a careful inspection of the quarantine station at Point Edward.

At your request I had been for some time investigating the conditions under which our export cattle trade to Europe is carried on, with a view to ascertaining the reasons why American cattle are landed in Britain in better condition and with less damage than those from Canada. I visited Chicago in the beginning of September for the purpose of looking into the methods followed by the inspectors of the United States Bureau of Animal Industry at that place.

Dr. Dyson, the officer in charge at the stock-yards, was exceedingly courteous, and explained fully the system under which the inspection work of the bureau is carried on at this great central shipping point. As I have furnished a short special report on this subject, together with a large amount of valuable information collected from our inspectors and others, I need not here enter into details.

Leaving Chicago I proceeded to Minneapolis for the purpose of attending the annual meeting of the American Veterinary Medical Association, which was held during the first week of September. While there I had the pleasure of meeting Dr. Salmon, chief



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of the Bureau of Animal Industry, and discussing with him many subjects of importance to the live stock interests of Canada and the United States. A large number of the most prominent veterinarians of America were present at this meeting, and many of the papers read and the discussions thereon were of the most interesting and valuable nature.

One paper which attracted much attention was that of Dr. Torrance, of Winnipeg, dealing with the peculiar disease of horses commonly known as swamp fever, which, as before stated, is being investigated on behalf of this Department by the essayist, in conjunction with Dr. Bell, Provincial Bacteriologist for Manitoba.

A similar investigation is being carried on by Dr. Wesbrook, State Pathologist, and Dr. Brimhall, State Veterinarian, for Minnesota, and as these gentlemen very kindly offered to give us the benefit of their researches, I accompanied Dr. Torrance to the state laboratory where we had an opportunity of acquiring much valuable information not only in regard to this disease, but also several others affecting live stock in the North-west. We were, fortunately, able to effect an arrangement whereby the results of the investigations carried on by our officers and by those of Minnesota will be mutually beneficial to those interested.

In furtherance of this idea I authorized Dr. Torrance to accompany Drs. Wesbrook and Brimhall to Fertile, Minnesota, where some cases of swamp fever were under observation.

Later in the season the Minnesota scientists had an opportunity of visiting Manitoba and seeing some cases there. I am satisfied that considerable benefit will result from this collaboration and that the investigation is likely to produce earlier and better results than would otherwise have been the case.

Before leaving Minneapolis I invited the members of the American Veterinary Medical Association to hold their next annual meeting in Ottawa. I have every reason to believe that the invitation will be accepted and that much good will result to the profession in Canada from the visit of this large and influential body of highly trained and intelligent veterinarians.

My next visit was to Regina, where various matters of importance were discussed with the Commissioner of Police, and where I also took up the question of the supervision of stock cars and yards with Mr. C. W. Peterson, our newly appointed inspector for the western division.

At Macleod I had an opportunity of meeting Dr. Burnett, chief veterinary officer of the North-west Mounted Police force, and of obtaining from him much valuable information as to the health and condition of stock in the range country.

From Macleod I proceeded to Cranbrook, B.C., where Dr. Bell, one of the officers in charge of boundary inspection, resides, and where I was desirous of obtaining some information as to the local conditions under which the work of this branch is carried on.

At Nelson I met Dr. Armstrong, who has charge of the inspection at that port and at Rossland, as well as at one or two outports on the boundary.

At Grand Forks I visited Dr. Richards, inspector for that district.

I regret to have to report that the conditions under which the inspection of stock crossing the international boundary in southern British Columbia is performed are exceedingly unsatisfactory. The ports of entry are far apart; few facilities for quarantining or even detaining stock are available, while the nature of the country, as a general rule, is such that veterinary surgeons can with difficulty carry on remunerative practice. The problem of furnishing capable inspectors at these scattered points is complicated by the changes constantly taking place in the routes of travel brought about by the construction of new lines of railway. This question is receiving my most serious consideration, and I hope to be able ere long to devise some means of overcoming the difficulty.

At Vancouver I visited Dr. Hart and Dr. Bland. Of these two gentlemen the former is one of the salaried officers of the department, while the latter has been for some years doing the work of stock inspection at Vancouver and other customs ports in the vicinity and obtaining his remuneration by the collection of fees.

I inspected the Canadian Pacific Railway stock yards and the facilities for the shipment of cattle by sea and found them fairly complete and satisfactory.



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At Vancouver I met, by appointment, Mr. J. R. Anderson, Deputy Minister of Agriculture for British Columbia, and discussed fully with him the question of the control of animal diseases in that province. This matter has for some time been engaging my attention and I hope soon to lay before you a practical scheme defining clearly the relative duties and responsibilities of our officers and those of the Provincial Government.

On the return journey I stayed over at Calgary for the purpose of inquiring as to the conditions affecting live stock in that vicinity. I called on Superintendent Sanders of the North-west Mounted Police, who arranged that I should meet Veterinary Staff-Sergeant Hobbs, who does most of the work of this branch in the country tributary to Calgary. From him I obtained interesting, detailed information regarding various outbreaks of disease in horses reported from the Red Deer district. These outbreaks are dealt with under the heads to which they properly belong.

I found the stock-yards at Calgary altogether inadequate for the heavy shipping trade done at that point. This matter is, however, receiving attention at the hands of Mr. Peterson.

On reaching Regina I made arrangements with Commissioner Perry for the sending of veterinary inspectors to Red Deer to deal with certain matters urgently requiring attention in that district.

At Emerson, in company with Dr. Robinson our inspector there, I visited the quarantine station at Fort Dufferin. A report of this inspection will be found later on.

At Winnipeg I had an interview with Dr. Little, the resident salaried inspector of the department at that point. The conditions prevailing there, owing to the constantly increasing importations of live stock from the United States and to a new departure, viz., the shipment of cattle in bond via Pembina, N.D., to Boston and Philadelphia, for export to Europe, are of such a nature as to demand some reorganization of the inspection service.

A definite understanding is also necessary as to the relative responsibility of this Department and the provincial authorities for the control of animal diseases, other than glanders.

While in Winnipeg I inspected the Canadian Pacific Railway Company's stock-yards, which I found in very satisfactory condition.

I discussed with Mr. J. T. Gordon and Mr. H. Mullins, two of the leading operators, the whole subject of the export cattle trade, and obtained from them much useful information on this important question.

A visit paid to the provincial laboratory and an examination of the work being done by Drs. Torrance and Bell in their investigation of swamp fever was very interesting. While the exact nature of the malady has not yet been defined, much necessary preliminary work has been accomplished and the ground cleared for further and more exact research. A full report of the investigation from the pen of Dr. Torrance is furnished herewith.

As, owing to the time necessarily occupied in transit, pathological specimens forwarded for diagnostic purposes from the North-west have frequently been found, on arrival, to have undergone such changes as to render them utterly useless, I discussed with Dr. Bell the making of an arrangement whereby such specimens might be sent to him for examination instead of to the laboratory here. I am satisfied that such an arrangement would be of great advantage to the work of the branch.

During my absence in the west a very serious outbreak of hog cholera occurred in the county of Kent. I had, previous to my departure, arranged with Dr. Tennant of London to assume charge of any serious outbreak which might occur in western Ontario. Several other inspectors were also called in as soon as the extensive nature of this recrudescence of the disease became apparent. I visited the district early in October, and after consulting with the officers on the ground and careful consideration of the whole question, I decided that in order to protect those engaged in the hog industry in other parts of the Dominion as well as to enable us to deal effectively with the disease in the affected area, it was advisable to forbid the movement of live hogs into, within or out of the townships of Tilbury East, Raleigh, Dover East and West, Chatham, Harwich and Camden. This decision meeting with your approval,



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an order to that effect issued on October 22. A special report on this disease will be found further on.

I have endeavoured in the foregoing pages to give a rapid general account of my own work since assuming the duties of your Chief Veterinary Inspector.

I now beg to present separate statements, as brief and succinct as possible, of the work done during the year just past, in connection with each of the various matters dealt with by the officers of this branch of your Department, accompanied, in some cases, by suggestions as to future procedure regarding them.

#### HOG CHOLERA.

This disease has for many years prevailed to a greater or less extent in the south-western part of Ontario, making its appearance from time to time however, not only in other parts of that province, but elsewhere in the Dominion.

The majority of these latter outbreaks, where not due to hogs imported direct from infected districts in the United States, have been traceable in one way or other, to the portion of Ontario already mentioned, where the conditions appear to be very favourable for the preservation and propagation of the contagion.

Among these conditions may be mentioned the climate, which is there comparatively mild. This mildness is, in itself, an important factor, as the germs are much more likely to retain their activity, than if the winter were more severe. It operates also indirectly, for the reason that warm housing not being an absolute necessity, the buildings used for swine on many farms in this district are of the most unsanitary character, damp, ill-drained and of such materials as to render it almost impossible to thoroughly cleanse and disinfect them.

Again, the fact that corn is the staple crop in this district has much to do with the spread of the disease, not only for dietetic reasons, but also owing to the fact that many farmers turn their hogs in the fields till late in the fall, a practice which is very favourable to the dissemination of the contagion.

In spite of the serious losses which have occurred in past years and the efforts which have been made to impress owners of swine with the importance of reporting every outbreak, many do not yet seem to have become fully aware of the danger of concealing the disease or of the folly of attempting to treat it by the use of quack nostrums and so-called secret remedies. In view of the great risk to which the hog-raising industry is exposed by the existence in Ontario of such a malady and of the liberal manner in which owners are compensated for animals destroyed by order of the Department, there is absolutely no excuse for such methods of dealing with it. It is my intention therefore to enforce strictly the provisions of the Animal Contagious Diseases Act against all persons concealing the existence of the disease, or attempting, contrary to the provisions of the said Act, to doctor up or dispose of affected animals.

A frequent cause of the spread of hog cholera exists in a practice followed by some of those engaged in the business of buying hogs for sale to packing houses. These men are in the habit of reselling to farmers any hogs which they find, after purchase, too small or too thin for packing purposes. In itself, this practice is perfectly legitimate, but in the case of hogs purchased in districts which may be described as permanently infected, it is found to be a very prolific cause of fresh outbreaks elsewhere.

As a rule, such outbreaks arise from some of the hogs in the shipment having been in contact, prior to purchase, with the disease in an acute form. Some farmers on the appearance of disease in their herds, instead of reporting to the department, immediately sell all hogs which have been in contact, but show no external signs of being affected. Such animals, are of course, very likely to develop the disease and to convey the contagion to others.

Again, one of the peculiarities of this malady is, that animals which apparently recover from mild attacks, seem able to harbour the germs indefinitely without apparent ill effects to their own health or even condition, or to those of other hogs kept with them. So soon however as such hogs are removed from their accustomed surroundings,



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subjected to sudden changes of diet, placed under unfavourable conditions or brought in contact with hogs never previously exposed or habituated to contagion, they appear to become active agents in disseminating the disease. This, however unexplainable, seems also to be true of the hogs mentioned above, as having been in contact with these recovered cases, although themselves at no time noticeably affected. Strangely however both classes of these apparently immune animals are liable to fall victims to the acute outbreaks seemingly developed through their own agency. This latter phenomenon is probably due to reinfection with germs which have acquired greater virulence from passing through the systems of the freshly infected hogs. Without dogmatizing as to the exact manner in which the infection is carried, it is a fact that a considerable number of the outbreaks which have occurred during the past season in districts far removed from the original seat of infection, have been undoubtedly caused by animals showing no symptoms of the disease, in the early stages of the outbreak, although they themselves later frequently succumbed.

Hog cholera during the past year has been confined to Ontario. The most serious individual outbreak occurred in May, at Hickson, eight miles north of Woodstock, when 27 hogs died while 256 were slaughtered by order of the Department, the whole being the property of one man. In this, however, as in the majority of similar cases, the disease has been stamped out and is not known to exist elsewhere than in the county of Kent, where towards the end of August, a very serious outbreak occurred in the townships of Tilbury east, Raleigh, Dover east and west, Chatham and Harwich. A few cases also developed in the township of Camden.

I had been anxious for some months regarding this district for the reason that, while but few cases of the disease were reported in Kent, the majority of the recent outbreaks in other parts of Ontario were directly traceable to hogs brought from that county. I had, therefore, previous to my departure, arranged with Dr. J. H. Tennant of London to assume charge of any serious outbreak which might occur in western Ontario. In consideration of the number of animals affected and the rapid spread of the disease, Dr. Perdue of Kingsville and Dr. Orchard of Windsor were called in to co-operate with the local inspectors, Drs. Kime of Chatham and Thorne of Wallaceburg, all being under the general supervision of Dr. Tennant. Through the united efforts of these five officers the disease has gradually, in spite of a number of adverse circumstances, been brought under control, not, however, before a very large number of hogs have been slaughtered and cremated. I visited the district early in October and after careful consideration of the whole question, I decided that, in order to protect owners of hogs in other parts of the Dominion, as well as to enable us to deal properly with the disease in the affected area, it was advisable to place the townships already named under close quarantine. This decision meeting with your approval, an order to that effect issued on Oct. 22.

Dr. Higgins has, during the summer, devoted a good deal of time and attention to pathological work in connection with this disease. His services also have been very valuable in establishing the true nature of outbreaks reported to the Department as hog cholera. In many cases his examination of the specimens forwarded has rendered certain the existence of the disease. On the other hand he has frequently saved considerable outlay by demonstrating, that outbreaks suspected by veterinarians to be hog cholera were due to other causes.

I have found it necessary to insist upon the adoption of more thorough methods in the inspection of the carcasses of hogs slaughtered by our officers, as many animals showing no external symptoms, are found, upon post mortem examination, to be diseased. The compensation paid for such animals is, very properly, less than that paid for contact hogs, but the saving to the Department, while considerable, is not so important as is the lesson thus conveyed to owners that only by promptly reporting every outbreak and otherwise co-operating with our officers in their efforts to eradicate the disease, can they hope to effectually protect themselves from serious and repeated loss.

I have in contemplation certain other changes which, with your approval I propose to adopt in dealing with outbreaks of this troublesome and costly malady. So long as it exists in the Dominion, the important industries of breeding and feeding hogs will be



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exposed to a constant and very real danger, a danger to the elimination of which every possible effort should be directed.

The following statement shows the counties, townships and districts in which cases of hog cholera occurred during the past twelve months, and the number of farms quarantined in each.

County.	Township or District.	No. of Farms quarantined.
Algoma .....	Sault Ste. Marie .....	1
Brant .....	Burford .....	2
Dufferin .....	Mulmer .....	4
Essex .....	Gosfield, S. ....	1
" .....	Sandwich, East and West .....	4
Kent .....	Chatham and Gore .....	90
" .....	Camden and Gore .....	3
" .....	Dover .....	18
" .....	Harwich .....	44
" .....	Raleigh .....	32
" .....	Tilbury, East .....	68
Lambton .....	Sarnia .....	1
" .....	Sombre .....	5
" .....	Warwick .....	1
Middlesex .....	Ekfrid .....	1
" .....	Flamborough, East and West .....	3
" .....	London .....	4
" .....	Mosa .....	1
" .....	Westminster .....	2
Oxford .....	Blandford .....	4
" .....	Norwich, North .....	1
" .....	Zorra .....	2
Peel .....	Chinguacousy .....	3
" .....	Toronto .....	2
" .....	Toronto Gore .....	1
Simcoe .....	Collingwood District .....	7
Welland .....	Bertie .....	1
" .....	Humberstone .....	1
" .....	Willoughby .....	5
Wentworth .....	Ancaster .....	1
		312

During the past twelve months compensation amounting to \$31,456.39 has been paid for 9,919 hogs slaughtered, of which 6,112 were diseased and 3,807 had been in contact with diseased hogs.

#### TUBERCULOSIS.

The situation as regards tuberculosis is practically unchanged. During the year 1,277 head of cattle were tested for export to the United States by the officers specially appointed for that work, in accordance with the agreement made in 1901, between the Bureau of Animal Industry and your Department. Of these 72 head reacted to the test, and consequently were not exported.

The burden of this work falls almost entirely on the officers stationed in Ontario and Quebec, few animals being exported from the other provinces. Drs. Stubbs, Tennant and Moore have been kept very busy, while Dr. Higginson has also been frequently called upon.

A small number of cattle were also tested by officers of the Bureau of Animal Industry, before being allowed to enter United States territory.

Cattle for breeding purposes and for milk production, other than settlers' effects, entering Canada from the United States, when unaccompanied by satisfactory charts, have been quarantined and tested by our officers at boundary points. The number so dealt with during the year was 43.



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Very little testing of grade or dairy cattle has been done this year; 389 head were tested in all, of which 83 reacted. As the results of this work in former years had not been found at all satisfactory, a circular on the subject, issued by the Department in December, 1901, contained a notice that no testing of cattle, except for export, would be done between March 1, and October 1. Since the latter date a few applications have been received, and as the regular officers have been fully employed, an arrangement has been reached whereby, upon an applicant stating the number of his cattle, and sending in the name of a reputable, qualified veterinary surgeon, the latter is furnished, free, with sufficient tuberculin to test the cattle in question, on condition that he reports to the Department the result of the test on charts provided for the purpose.

I would, however, strongly recommend the adoption, as soon as possible, of a system of permanently marking all animals reacting to the tuberculin test, when applied by officers acting under the authority of the Department.

The present method of dealing with these animals is very unsatisfactory.

The testing in Britain of cattle for export to Canada is fully dealt with in the report of Dr. Hopkins, who is in charge of that branch of the work of the Department.

I may say, however, that at the opening of the importing season last spring, Dr. Salmon, chief of the United States Bureau of Animal Industry, notified me that he had instructed Dr. Geddes, his officer in Britain, to refrain from further testing in herds where twenty per cent or more of animals tested had reacted. In accordance with the policy of mutual action agreed on between the two countries, I at once issued similar instructions to Dr. Hopkins. Lists of herds coming under this restriction were exchanged by these two officers from time to time during the summer, with the result that a considerable number of British breeders are now debarred from having animals tested for shipment either to the United States or to Canada.

In the early part of October it became necessary for Dr. Hopkins, after asking for and receiving instructions by cable, to announce to Canadian importers that cattle purchased from certain herds, would be subjected to a further tuberculin test in quarantine after arrival in Canada.

These new departures gave rise to considerable newspaper discussion in Britain, the result of which will, I think, eventually prove of great benefit both to breeders and importers.

While dealing with this subject, it may be noted that although tuberculin is steadily gaining ground among intelligent breeders as the best means of diagnosis in the early stages of tuberculosis, and therefore as a most valuable agent in detecting incipient cases with a view to their segregation, recent experiments have thrown much new light upon what is, perhaps, its most important limitation. It has, of course, been long understood that there must, in the very nature of things, be a period of latency or incubation between the time when an animal becomes infected and the time when it will give a reaction to the tuberculin test. In 1899 and 1900, the Tuberculin Committee of the Royal Agricultural Society of England, carried on a series of careful experiments with a view to determining the length of the period in question. At about the same time, but quite independently, Drs. Nocard and Rossignol conducted a similar series of experiments in France, under the auspices of the Société de Médecine Vétérinaire Pratique. In both cases the results were practically the same, demonstrating that the period of incubation, while depending largely on the mode of infection and the size of the dose, varies in length from eight to fifty days.

This knowledge is most important to people desiring to maintain healthy herds, showing as it does, the necessity for the repeated testing of animals which have been in contact with those affected.

Experiments with a view to discovering whether or not, as claimed by Von Behring, tuberculin possesses the power of rendering cattle immune to tuberculosis, have, during the past year, been conducted by Prof. McFadyean, principal of the Royal Veterinary College of London. The results so far, do not furnish conclusive proof on the point although Prof. McFadyean thinks the outlook is reasonably hopeful.

The possible curative properties of tuberculin in incipient cases have also been the subject of considerable discussion. It is beyond dispute that a percentage of reacting



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animals, especially if young and strong, eventually cease to react and never afterwards develop the disease. Whether recovery in such cases is due in any way to the use of tuberculin or whether the curative process is a natural one, is a point not yet settled. There is here an opportunity for experimental work of great importance to stock owners.

I trust that in the near future, I may be able, with your approval and the able assistance of Dr. Higgins, to inaugurate and carry on a series of experiments with the object of clearing up this important point.

Our knowledge of tuberculosis is even yet far from complete. The realization of this fact has a tendency to promote caution in adopting drastic measures for the eradication of the disease. The policy should be one of mutual improvement of our knowledge by the free exchange of the fruits of observation and experience between stock owners and veterinarians. One of the most certain results of such a policy would be the recognition by breeders of the fact, that the maintenance of tuberculous cattle is not nearly so remunerative as that of sound animals. In order to eradicate the disease, indiscriminate slaughter is by no means necessary. So long as an animal, whether male or female, is not breaking down from generalized tuberculosis, or suffering from tuberculosis of the generative organs, its progeny can, with proper precautions, be reared absolutely free from disease.

Exception should also be made in the case of cows suffering from tuberculosis of the udder or of the glands in the mammary region as the element of danger in these cases, is too great to be trifled with. All such animals should be slaughtered.

The experience of Mr. Edwards, M.P., in our own country, has proved conclusively that, under the system inaugurated by Prof. Bang, of Copenhagen, perfectly sound calves can be reared from diseased sires and diseased dams. With proper care and patience, the transformation of a badly diseased herd into one absolutely sound is only a matter of time.

The theories advanced by Prof. Koch at the British Congress of tuberculosis last year, have not only not been adopted by other noted scientists, but have been utterly confuted by the results of careful experiments conducted by eminent pathologists both before and since his pronouncement. The mere fact however, of the possibility of such a difference of opinion existing between men of the highest scientific attainments, should have a tendency to check irrational dogmatizing among people of vastly inferior knowledge.

#### GLANDERS.

I regret to have to report that, as usual, a considerable number of cases of glanders have been dealt with by our inspectors during the past year. In the North-west Territories there have been altogether 112 horses killed. The outbreaks, however, have been limited in extent; in the majority of cases, one or two horses only being affected.

I am glad to say that very few cases have been observed in the range country, most of the diseased animals having been the property of settlers in the farming districts.

The disease appears to be more prevalent in eastern Assiniboia than elsewhere, although a considerable number of cases have been reported lately in the Red Deer country. This latter outbreak is said to have been caused by an importation of horses from Montana in the latter part of 1901.

One outbreak was reported last winter by Dr. Armstrong our officer at Nelson, B.C. Nine horses were destroyed at Slocan, and the disease appears to have been completely stamped out. This outbreak is stated to have been due to horses taken in from Alberta.

As in former years the disease has prevailed to some extent in Manitoba, but owing to the fact that it is there dealt with by the provincial authorities, we have no official record on the subject.

At Hamilton, Ont., three cases were detected in the early spring. The affected animals were destroyed on my advice, but this outbreak was not dealt with officially by the Department.



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In the latter part of August I became aware of the existence of a number of cases of glanders in the city of Ottawa and in the surrounding country. Hitherto this disease, always in Ontario and generally in Quebec, has been left to the care of the provincial authorities, but owing to the serious and extensive character of this outbreak, I deemed it best to take prompt and effective measures for its suppression. Some few horses had been killed by officers of the city police department, previous to my being notified of the existence of the disease. From the time that I assumed charge of the outbreak, no animals were killed except by the orders and under the supervision of one or other of the veterinary inspectors of the Department.

Up till October 31 sixteen horses were destroyed by our order, and their carcasses properly disposed of either by burning or by deep burial.

Owing to the large number of cheap and inferior horses owned in Ottawa and Hull, the unsanitary conditions under which many of them are kept, and the ignorance or indifference of owners, our inspectors have experienced great difficulty in carrying out the provisions of the law. A considerable number of the animals dealt with were found in Hull and in its vicinity on the Quebec side of the river. Where any doubt existed as to the nature of the disease, the animals were tested with mallein for the purpose of confirming the diagnosis. All horses which had been in contact with animals actually affected were also tested.

Hitherto it has been the general practice of the department to order the destruction of horses reacting to the mallein test, whether showing clinical symptoms or not.

Experiments carried on during recent years in different parts of the world have shown that these extreme measures are by no means necessary. Mr. Wm. Hunting, F.R.C.V.S., of London, undoubtedly the greatest living authority on glanders in the English speaking world, is satisfied that animals not showing clinical symptoms, are not only non-infective, but that nearly fifty per cent of them, on being re-tested, cease to react and eventually become permanently cured of the disease. As a conclusive proof that the cure in such cases is complete, it may be stated, that when these ceased reactors die or are killed, although the lesions of glanders are invariably found in the lungs, it is impossible to obtain therefrom a culture of the bacillus mallei, or to transmit the disease to other animals by direct inoculation with the material obtained from these lesions.

This is in accord with my own experience, as also with that of other veterinarians in Manitoba and elsewhere on this continent.

Where, therefore, no clinical symptoms are shown our officers do not now order the animal to be destroyed, but serve the owner with a notice prohibiting the selling or otherwise disposing of the suspect, so that it may be re-tested at intervals of two or three months. Animals reacting for the third time to the test will be destroyed, as in such cases there is little hope of their becoming cured. On the other hand, those which cease to react will eventually be discharged from quarantine although they will for some time thereafter be kept under observation.

As no compensation is paid by the Department for horses destroyed as being affected with glanders, it is unreasonable to kill an animal which has what may be termed an even chance of recovery.

## PICTOU CATTLE DISEASE.

There is a slight increase in the number of cases of this disease as will be seen from the report of Dr. Townsend, the officer in charge of the work of inspection in the affected district. This malady which is a specific cirrhosis of the liver, has received considerable attention from the officers of this branch of your Department for many years back, but as yet no definite results have been attained, the true nature of the disease being still a mystery, while practically nothing has been learned as to its cause. Lack of knowledge on this latter point renders the adoption of effective means of prevention impossible, while treatment so far has apparently been quite useless.

For some time back Dr. Gilruth, principal veterinary officer for the government of New Zealand, has been investigating a disease of a similar nature which prevails in th



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district of Winton, Southland, N.Z., and which is known as Winton disease. This differs somewhat from the Pictou disease inasmuch as while affecting both species of animals, it is more frequently seen in horses than in cattle.

Dr. Gilruth is inclined to the belief that the liver is not, as has been generally supposed in Canada, the primary seat of the disease, but that the condition of that organ is due to an auto-intoxication from some toxic agent produced by fermentation or other abnormal digestive process.

He has been unable as yet to demonstrate the initial cause of the poison, which he thinks will prove to be some micro-organism belonging to the vegetable kingdom.

Should this hypothesis prove to be correct, it may possibly justify the belief entertained by many of those most familiar with the subject that the presence of the disease in Pictou county is due in some way to the Ragwort '*Senecio Jacobea*' which, they state, is found only within the limits of the affected district. This plant may at some period of its growth or while in process of desiccation be the habitat of an organism such as that, the existence of which is suspected by Dr. Gilruth. Whatever the result of Dr. Gilruth's investigations may be, it is to be hoped that some more definite information regarding Pictou cattle disease may be obtained in the near future, as the present method of dealing with it is unsatisfactory to a degree.

It is difficult to see why the department should be called upon to compensate owners of animals affected with this disease. There is absolutely nothing to show that it is of a contagious nature, in fact the burden of proof is to the contrary.

Dr. Pethick, of Prince Edward Island, who has recently taken a special pathological course at McGill University, spent some six weeks during the past summer in eastern Nova Scotia in investigation work on this disease and in preparing and forwarding specimens of the various organs to the pathological laboratory here. This was done preliminary to an investigation as searching and thorough as can be made.

Without in any way discrediting the efforts of previous investigators, the hope may be expressed that with the more perfect scientific knowledge of the present day and the experience as well as the mistakes of others to guide his course, Dr. Higgins may be able to successfully demonstrate the true nature of this disease and so point the way to the adoption of intelligent means for its control.

Appended hereto is the special report of Dr. Pethick on his work in the affected area.

#### ACTINOMYCOSIS.

This disease, judging from the reports of our inspectors, is not so frequently seen as formerly among Canadian cattle. Actinomycosis, properly so-called, can scarcely be termed a contagious disease, as it is generally produced in animals by the consumption of grass or other herbage on which the fungus giving the malady its name has developed or found lodgment. The alarm which prevailed regarding it during the early years of the last decade has been dispelled by the recognition of the fact that it is very seldom transmitted from animal to animal, and scarcely ever from animal to man. Such cases as occur in human beings are, according to Nocard, generally caused by the use as food of uncooked vegetables.

Repeated experiments have shown that it is difficult to transmit the disease even by direct inoculation.

In Chicago, where at one time the greatest excitement prevailed regarding actinomycosis, the United States inspectors no longer regard as dangerous the use for food of the flesh of animals having local lesions about the head only, although the carcasses of those in which the disease is generalized are very properly condemned.

All leading pathologists concur in the view that actinomycosis proper is not a dangerous malady, nor one against the spread of which any elaborate precautions are necessary.

An important scientific discovery has, however, been recently made by M. Lignières, a prominent pathologist of Buenos Ayres. Careful investigation by this gentleman has shown that, closely resembling actinomycosis and hitherto confounded with or mistaken



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for it, there exists a much more virulent and communicable disease to which he has given the name actinobacillosis. This disease, in which the lymphatic glands are affected to a far greater degree than is the case in actinomycosis, is due to a microbe apparently closely related to the *Pasteurellæ* and differing widely from the streptothrix, long known as the cause of the more familiar malady.

Actinobacillosis is prevalent in Argentina, where it spreads very rapidly, sometimes affecting over fifty per cent of the cattle in herds where it secures a foothold.

M. Nocard has also, since the discovery of M. Lignières, detected it among cattle in France.

We have as yet no evidence of its existence in Canada, and it is to be hoped that none will be found. I am, however, arranging to provide Dr. Higgins with as many specimens as possible of diseased tissue from animals affected with what we know as actinomycosis with a view to discovering whether or not we can justly lay claim to freedom from this newly recognized malady.

No statement has as yet been made as to the effect, if any, on this disease of the iodide of potassium treatment frequently so efficacious in actinomycosis.

## ANTHRAX.

A few isolated cases of anthrax have been reported during the past year from various parts of the Dominion, but I am glad to be able to state that no serious outbreak of the disease has occurred.

In every instance where its existence was detected prompt and stringent measures were adopted for its control. Carcasses and debris were either burned or buried with such precautions as to ensure the destruction of the bacilli and the infinitely more resistant spores, while all other needful steps were taken to prevent the dissemination of infection.

The infected area at Swift Current, in Assiniboia, where, it will be remembered, a very serious outbreak occurred last year, was kept closely quarantined until October 10, when, no fresh cases having appeared, it was officially released.

This ground was twice burned over, and it is to be hoped that no recrudescence of the disease will take place.

At the meeting of the Western Stock Growers' Association, held in Macleod last April, I took occasion to impress upon the ranchers the importance of properly disposing of the carcasses of all animals found dead on the range, especially when no definite cause of death could be assigned. The destruction of such carcasses, while undoubtedly in many cases a task of considerable difficulty, is most important, particularly in districts where anthrax and black quarter are known to exist.

No preventive inoculation was undertaken by our officers, but during the year 450 doses of anthrax vaccine were supplied through the department to veterinary surgeons and stock owners. This was effected under an arrangement made last year with the Pasteur Vaccine Company, of Chicago, whereby a discount of  $33\frac{1}{3}$  per cent is secured to Canadian purchasers. This vaccine is evidently of satisfactory quality, as no complaints have reached the department from those using it.

I hope, however, that we may, in the near future, be able to adopt the method followed by the United States Bureau of Animal Industry and, by manufacturing this and similar agents at our pathological laboratory, be in a position to furnish them to stock owners either free or at a merely nominal cost.

## BLACK QUARTER.

A considerable number of cases of black quarter have been reported, principally from the North-west Territories and Manitoba, although a few small outbreaks have also taken place in Ontario and Quebec.

The mortality from this disease is, however, yearly decreasing on account of the rapidity with which the preventive inoculation of young cattle is growing in favour with stock owners.



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The vaccine, the cord form of which is now generally preferred, is furnished through the department on terms similar to those described in the case of anthrax and at a similar reduction in price.

A great saving to stock owners would, however, be effected by having it manufactured in and supplied direct from our own laboratory, and I trust that we may soon be able so to arrange matters as to make this possible.

During the year 7,580 doses were supplied to applicants, either directly by the department or through our officers in the North-west.

#### VERMINOUS BRONCHO-PNEUMONIA.

Many of the outbreaks reported to the officers of the department as hog cholera, prove on investigation to be verminous broncho-pneumonia. This disease is very prevalent in Ontario and appears to be on the increase, particularly where hogs are kept under unfavourable dietetic and hygienic conditions.

Where proper attention is given to the feeding and housing of hogs it is unlikely to occur and, broadly speaking, may in the majority of cases be attributed to neglect. While not of nearly so serious a nature as hog cholera, it is much more widespread, and although in its milder form, it may not cause death, it is a source of great and needless financial loss to owners of hogs.

Hogs infested with worms, whether in the bronchial tubes, the lungs or the intestines, are always more or less unthrifty and, therefore, unprofitable.

While on this subject, I would direct attention to the statements in the report of Dr. Higgins as to the frequency with which these undesirable and unnecessary parasites are found in the pathological specimens forwarded to him for examination.

#### MANGE IN CATTLE.

The history of mange in cattle during the past year has been very similar to that of former seasons since its first appearance in the range country. It prevailed to a serious degree during the winter, but disappeared almost entirely with the advent of warm weather, only to reappear in the fall, although not yet to any considerable extent. In accordance with the terms of the resolution adopted at the last annual meeting of the Western Stock Growers' Association (see page 72), the majority of the cattle owners are looking closely after the treatment of affected animals. Where it is evident that proper measures are not being adopted, the officers of the North-west Mounted Police compel owners to take up and treat their cattle.

Treatment by hand is, where possible, preferable to dipping, although with favourable conditions, the latter is also very satisfactory.

Affected animals are not allowed to be shipped for sale, export or otherwise. One exception to this rule, viz., a car-load sent direct to Calgary for slaughter, may be noted in the report of the Commissioner of the North-west Mounted Police.

#### MANGE IN HORSES.

I regret to have to report the reappearance of mange in horses, which is now prevalent to some extent in several bands in the High River district.

Early last spring some cases were reported at Gleichen. These were dealt with by the North-west Mounted Police. No more was seen of the disease until the month of August, when it was detected in the High River district by Staff-Sergeant Hobbs.

A careful inspection of all the horses likely to have been in contact was ordered and all those affected or suspected have been placed in quarantine.

This disease prevailed to a considerable extent among horses in the North-west Territories some years ago, but had practically disappeared, although an occasional case was reported, until last spring, when, as already mentioned, it again showed itself. On the present occasion it has doubtless been imported from Montana.



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## SHEEP SCAB.

Very few cases of sheep scab have been reported of late. One suspected outbreak of the disease was dealt with in the county of Ontario in March last. All necessary precautions were taken and the suspected premises were released from quarantine on August 1.

In June last a small flock of sheep were quarantined at Valcartier, Quebec. The affected sheep were dipped twice and the quarantine has not yet been removed from the premises.

In the North-west Territories the disease was detected early in the year in a small band of sheep imported from Utah to Stirling, Alta. The affected animals were promptly subjected to treatment, with the result that the disease was completely stamped out. Immediately on this outbreak being reported, orders were issued that all sheep crossing the boundary into western Canada should be very closely inspected, and, if necessary, detained for a period sufficiently long to ensure their freedom from disease.

In September I was notified by Dr. Knowles, State Veterinarian for Montana, of an intended shipment of sheep from that state to Alberta. Acting on his advice, these sheep were held and very closely inspected but no evidence of disease was detected among them.

At present, so far as is known to this department, no sheep scab exists in Canada

## SWAMP FEVER.

For many years past, in fact ever since settlement first began, there has been known in the Red River Valley a peculiar and very fatal disease of horses. Its exact nature has not even yet been decided, although it has long engaged the attention of stock owners and veterinarians in the districts, now widely extended, where it is most prevalent. It is a disease of low lying and swampy country, and is therefore popularly known as swamp fever, although it has been called by various names, such as surra, progressive pernicious anæmia, low fever, typhoid fever and malarial fever. This last is undoubtedly the most appropriate, although its malarial origin has not yet been clearly proved.

It generally makes its appearance in late summer or early fall, few fresh cases being observable between December and the latter part of July. Its onset is most insidious; the first three or four exacerbations, being slight and of short duration, are frequently overlooked by the owner, and in this way the disease gets a firm hold of the system before professional advice is sought or treatment adopted. Ordinary cases live from two to four months after seizure, although, under favourable conditions, life may be prolonged to a much greater extent. The most prominent symptoms are emaciation, at first gradual, but becoming much more rapid as the disease progresses, œdematous swellings of the abdomen and limbs, constantly increasing pallidity of the visible mucous membranes on which also petechial spots are occasionally seen, a peculiar soft flat pulse which is in itself almost diagnostic, and most important of all a periodical rise and fall of temperature ranging from normal to 105°.

The appetite, though sometimes capricious, generally remains good until within forty-eight hours of the end. As the disease progresses there is frequently noticeable a lack of muscular control, but this symptom is not constant, and is, I think, due more to general weakness than to any specific cause.

The action of the bowels remains normal throughout, but there is frequently an increased flow of urine particularly in the latter stages of the disease. Recovery is, in my experience, very rare, although I have seen several animals rally under steady treatment and regain a full measure of strength and vitality. Occasionally a case will appear to improve, and hopes of recovery may be entertained, only to be destroyed by a sudden relapse leading to a fatal termination.

There is no evidence that the disease is contagious.

Post mortem examination reveals the muscular tissue almost bloodless; what little blood is to be seen in the vessels is pink rather than red, owing to the diminution and disintegration of the red blood corpuscles. Yellow gelatinous deposits are also found



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among the muscles, especially in the pectoral region. The lungs are anæmic, but otherwise apparently normal. The liver is frequently enlarged while its tissue is soft and friable. The spleen is small, friable and light in colour. The kidneys are often somewhat enlarged but flabby and easily broken down, while pus is sometimes present in these organs, upon which also fatty deposits frequently occur. The bowels are pale and flaccid and not infrequently show on the mucous surface large petechial patches of a brownish colour. The muscular tissue of the heart is abnormally soft, and deposits of fat are generally to be seen on this organ. Greenish clots are almost invariably present in the heart, and the large vessels leading from it, and on the lower aspect of such clots is a thin layer of pinkish coagulum, which on examination proves to contain red corpuscles, many of them broken down.

Treatment has hitherto been of little avail, almost every agent in the pharmacopœia having been called into requisition with negative results. The treatment recommended for surra by Dr. Lingard, chief of the civil veterinary service in India, has of late years been adopted by some veterinarians. This consists of a long continued course of arsenic, beginning with a dose of four grains twice daily, working gradually up to eight or ten grains, continuing the maximum dose daily for a week and then gradually reducing the dose until four grains is again reached. This course continued for a long period when combined with mineral and vegetable tonics, and, if possible, change to high dry ground and generally healthy surroundings, has been perhaps more satisfactory than any other yet tried.

The mortality from this disease is in some districts simply appalling, many settlers having been completely ruined by its ravages among their horses. Fortunately there are many parts of the country where it is entirely unknown, and many other localities where only an occasional case is met with.

Its investigation has until this year been left almost entirely to private effort. Two years ago the government of Manitoba made a grant of \$260 to which was added a small sum by the veterinary association of the province. This money was carefully expended by Dr. Torrance, who, in conjunction with Dr. Bell, Provincial Bacteriologist, was chosen to conduct the work, but it of course proved altogether inadequate for the purpose for which it was intended.

With your approval I have this year arranged with the gentlemen already named, to make a thorough investigation which has now been in progress for some time. The report of this work furnished by Dr. Torrance will be found most interesting and instructive.

The disease has unfortunately been frequently confounded, not only by laymen, but by many veterinarians, with various forms of influenza, which latter malady has been more or less prevalent in Western Canada for the last ten or twelve years. Where the diseases are co-existent, as they undoubtedly are in several districts, there is some excuse for this confusion, but there is little real resemblance between them, and any one familiar with the so-called malarial fever cannot well mistake it for anything else.

It is to be hoped that the researches now being carried on will be the means of not only determining the true nature of this destructive malady, but of discovering a method of dealing with it which will put an end to the serious losses which it has hitherto caused.

#### QUARANTINE STATIONS.

During the summer I have inspected all the important animals quarantine stations throughout the Dominion, and beg to report thereon as follows:—

*Point Lévis, Que.*—This is in many respects an ideal quarantine station, and its management reflects great credit on Dr. Couture and his staff. During the year a number of improvements have been made, and the buildings are now in better condition than ever before, while the roads have been put in good repair, and a system of lighting has been introduced.

It is somewhat of a disadvantage that animals, after being landed must, in order to reach the quarantine, be driven for a considerable distance over the public highway.



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While every precaution is taken to prevent possible contact with other live stock I think it advisable that steps should be taken to remedy this state of affairs. Several plans have been suggested, and I am giving the matter my most careful attention.

*St. John, N.B.*—No proper quarantine station exists at this port. A small plot of ground and several buildings on the outskirts of the city are held under lease by the department. This station also, can only be reached by driving the animals from the ship through the streets.

During my visit, I examined a considerable number of properties, with a view to the location of a permanent quarantine station which, owing to the rapidly growing importance of St. John as a winter port, will probably be more necessary in the future than in the past.

Dr. Frink, our officer there, is deeply interested in the improvement of quarantine facilities, and in consideration of the number of cattle now exported I would recommend that he be given authority to employ a suitable man to perform the duties of caretaker at the quarantine station, and to assist in the inspection and marking of cattle about to be shipped.

*Halifax, N.S.*—The quarantine station here is also somewhat unsatisfactory, inasmuch as it is situated on the Dartmouth side of Halifax harbour, and it is necessary to convey animals some twenty-five miles by rail from the deep water terminus, round by Windsor Junction in order to reach it without using the public highway. The buildings are also old and in bad repair. Very few animals are at present quarantined at Halifax, but as accommodation may be required at any time for stock landed from Europe or from the United States, I would strongly urge that a small property be purchased or leased on the railway line close to the city, and that a suitable building be erected thereon. The sale of the present grounds and buildings would somewhat lessen the expenditure required for this purpose.

Dr. Jakeman the officer in charge agrees with my views on this matter.

*Windsor, Ont.*—There is no proper quarantine station at this point, and although the number of animals dealt with is comparatively small, I would recommend that a building similar to that erected by the department at Niagara Falls should be provided in a location suitable for the purpose.

Dr. Orchard the officer in charge does his best to provide suitable quarantine facilities, but is heavily handicapped in the performance of his duties, by the want of proper accommodation.

*Point Edward.*—This I found to be one of the best and most suitable of the quarantine stations under the control of the Department. While it does not at all compare with the station at Levis, in other particulars, it has the great advantage of being so situated as to allow of the unloading of stock direct from the cars into the grounds. The buildings on this property are solid, substantial and for the most part in excellent repair. This is no doubt largely owing to the fact, that a thoroughly reliable caretaker resides upon the grounds, and is thus enabled to keep a watchful eye on the property of the department. The accommodation is of course, largely in excess of what has been required, since the removal of the ninety days' quarantine between Canada and the United States, but as it costs comparatively little for maintenance, I would strongly urge its retention by the Department, as under certain circumstances, such a station might be found exceedingly useful.

*Emerson.*—This station consists of a number of buildings known as Fort Dufferin, and formerly used as barracks by the British North American Commission. It is situated on lots Nos. 31 and 33, in the parish of Ste. Agathe, comprising some 220 acres of land partly covered with brush and scrub. The buildings are all more or less in need of repair, and are apparently used by the caretaker for ordinary farm purposes, a considerable number of horses, cattle and pigs being kept on the premises. While this station doubtless served a useful purpose in its day, it is not adapted for the present needs of the Department. It is some three miles from a railway station, thus rendering



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it necessary to convey for that distance over the public highway the occasional pig or cow, which under the present regulations may have to be subjected to quarantine for a few days. Even when reached it is not a quarantine station in any sense of the word, but partakes more of the nature of an ordinary farm. Extensive repairs will be required immediately if the buildings are to be preserved from total ruin. I would therefore recommend that the whole property be leased for a term of years, provision being made for cancellation of the contract should the Department at any time find it necessary to reoccupy it. A small building erected in proximity to the railway at Emerson, or even at Winnipeg, would serve every purpose during the continuance of the present regulations, while the annual cost to the Department would be very much less than at present.

Some definite arrangements should be made as to points where animals imported from the United States might be properly inspected and quarantined. At the present time importers are in the habit of presenting themselves at any customs port along the boundary and demanding inspection and quarantine facilities. While owing to the large influx of settlers it may be advisable to remove all possible obstructions to the free passage of live stock into the west, the conditions in eastern Canada are not of such a nature as to render restriction to definite ports of entry a serious grievance. I would recommend therefore, that there should be selected, in addition to the stations at Sarnia, Windsor and Niagara Falls, one or two points on the St. Lawrence river and one or two points on the boundary between Quebec and United States territory. These, and the possible addition of Yarmouth, N.S., with existing stations, would be quite sufficient for all practical purposes. Such an arrangement would simplify and render much more effective the quarantine service.

I have the honour to be, sir,

Your obedient servant,

J. G. RUTHERFORD,

*Chief Veterinary Inspector.*

The Honourable

The Minister of Agriculture,  
Ottawa.

No. 16.

#### REPORT OF THE PATHOLOGIST.

(CHAS. H. HIGGINS, B.S., D.V.S.)

OTTAWA, October 31, 1902.

SIR,—I have the honour to transmit this my report as Assistant Pathologist to the Department of Agriculture, covering my work from November 1, 1901, to June 30, 1902, and as Pathologist from July 1 to October 31, 1902.

During the first part of this period quarters for the conducting of the laboratory work were furnished at the Royal Victoria Hospital in Montreal, which quarters were occupied up to the time of the completion of the pathological and bacteriological research laboratories of the medical faculty of McGill University, at which time one of these newly equipped rooms was placed at my disposal. These quarters proved very convenient for the work in hand though the distance from the University to the Experiment



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Station at Outremont, where all of the experimental animals were kept made it difficult to systematically pursue original investigations.

In April, owing to the concentration of the work of the Veterinary Branch of the Department, I was transferred to Ottawa from Montreal, and have since that time been engaged in equipping the Biological Laboratory, temporary quarters for which have been furnished in an office building on Queen street, situated in the heart of the city. It is expected that within another month we will be occupying our new and commodious laboratory building at the Central Experimental Farm, which is especially designed and equipped for the thorough investigation of the many and varied questions concerning the control and prevention of contagious diseases of animals as seen in the Dominion.

Aside from the laboratory experiments, there have been tested by me with tuberculin 156 head of cattle with 16 reactions, the majority being for export to the United States. Assistance has also been rendered in controlling the outbreak of glanders in Ottawa, when such aid did not interfere with the routine work connected with laboratory investigations.

DO ELECTRICAL CURRENTS OF HIGH FREQUENCY EXERT A CURATIVE INFLUENCE IN  
TUBERCULAR INFECTIONS?

It was suggested by Dr. G. P. Girdwood, shortly after the meeting of the British Congress on Tuberculosis, at which time Dr. Chisholm Williams read a paper upon the curative effects of such treatment in cases of tuberculosis in the human, that experiments be conducted on guinea-pigs, to determine what, if any effect was produced by the use of these particular electrical currents in tubercular infections. I was unable to attend to the matter immediately, but during the month of February prepared the preliminary animals from which the infective material was obtained. The carefulness with which this preliminary work was conducted subsequently proved of little value, it being impossible to complete the work on the original plan laid out, namely, to determine by cultures from the animals treated and untreated, what, if any change the bacilli had undergone, both as regards their pathogenesis and their cultural characteristics. Though these experiments as laid out were not fully completed, the work accomplished indicates that there was a decided change exerted both in the duration of the disease and upon the vitality of the animals treated.

In conducting these experiments the necessity of having data strictly comparable was ever in view and in their pursuit the treated and untreated animals were placed under as nearly identical conditions as it was possible to obtain. The animals used were taken from the breeding pens, all being in a perfectly healthy state. They were not as large as one would wish for such experiments, it being conceded that in testing the virulence of varieties of tubercle cultures it is essential to employ guinea-pigs weighing 800 grammes or thereabouts. While these experiments are not, strictly speaking, a testing of virulence, but of creating through their use an attenuation or destruction of the tubercle bacillus within the system of the animal, through the use of the electrical currents in question.

The source of the material with which the animals were inoculated was a tuberculous steer condemned for beef purposes at a Montreal abattoir. Nodules from the pleura costalis were used on a series of four guinea-pigs, one of which later furnished the material for the animals that were placed under observation and electrical treatment. The guinea-pig furnishing the material for the inoculation of all observation animals died of a generalized tuberculosis thirty days after infection. The three other guinea-pigs inoculated on the same date with the material in question, died in 32, 33, and 35 days respectively, and in each case a generalized tuberculosis was revealed at the autopsy. The method of inoculation in all of the animals above referred to was subcutaneous, a pocket being formed in the flank region by drawing up a fold of skin, cutting it across, and, with a small blunt instrument, tearing away the connective tissue; thus opening a space sufficiently large to admit a piece of tuberculous tissue about one-eighth inch cube.

As is already stated nodules from the pleura costalis were used on the first four animals, while in the inoculation of the twelve selected for the experiments here recorded,



portions of the liver were inserted in the subcutaneous pockets formed. These twelve animals were kept together in a large cage up to the time of the commencement of the treatment. Two of these animals died from septicæmia within a week from the date of inoculation, a third pig died seven days after the commencement of the treatment (the seventeenth day of the disease), from rupture of the rectum and subsequent peritonitis, occasioned by an accident in taking the temperature.

The above is a brief statement of the source of the material, together with that of the animals and their mode of preparation for the experiments in hand.

On the tenth day of the disease (March 14, 1902), they were taken for their first treatment to the Royal Victoria Hospital where they were subsequently quartered during the entire time of observation. At the commencement of the treatment the guinea-pigs were divided and kept separately, but not isolated in individual cages, there simply being a division of the treated from the untreated. The treatment consisted in exposing the animals for ten minutes daily to the effects of the electrical currents. After a few days treatment the daily exposure was increased to twenty minutes, the time being divided into ten minute intervals at 9.30 a.m. and 5.30 p.m. The manner of making the exposure was very simple. A box was constructed with a tin bottom and a slat top, the height being such that an animal could not get his feet out of contact with the tin bottom by crowding. Over the top of this box was placed a piece of sheet lead of sufficient size to completely cover the animals inclosed, the arrangement being such that this sheet was supported a sufficient distance from the backs of the animals to prevent accidental actual contact. The two poles of the electrical apparatus were connected, one with the tin bottom of the box and the other with the sheet of lead covering the animals. All animals were in this manner equally exposed to the effect of the electrical currents. The weights of all the animals were taken once daily, and the temperatures of those under treatment were taken in the morning and in the afternoon previous to their exposure, while the temperature of the untreated was taken but once daily and then in the morning. Both treated and untreated animals received at all times similar food materials and the same attention was observed in the cleansing and disinfecting of their respective cages.

#### CLINICAL OBSERVATIONS OF THE TREATED ANIMALS.

The variations in the temperature were marked and conform to variations noted by Dr. Chisholm Williams in his experiments upon the human being. The temperatures of all these animals were normal or slightly raised in the morning, with a rise in the afternoon varying from 1.0 to 2.2 degrees F. As the treatment progressed there was also an elevated temperature in the morning above the normal, but in few instances only was it higher than the point reached in the afternoon of the same day. In these temperature elevations while the variation between the morning and evening was considerable it is noted that there is a gradual temperature curve which first ascends then gradually recedes, but in no instance did it approach the normal temperature or that which was constant before the commencement of the exposure of these animals to the electrical currents. The continued manifestation of a febrile condition cannot be attributed to the electrical treatment the animals were receiving, for it is but natural to have this elevated temperature in acute tuberculosis; but the rise occurring constantly, eight hours more or less after exposure to a certain form of treatment, is unusual and it is to this rise that attention is particularly drawn. The weights of these animals fluctuated in a somewhat similar manner to their temperature. After inoculation during the ten days prior to the commencement of the treatment the weights of these animals decreased. During the first few days of exposure to the currents of high frequency the weights of the animals continued to fall. This fall was gradual, being followed by a gradual rise which in every case attained its maximum on the eighth day of treatment or the eighteenth day of the disease. Reference to the table will give detailed information as to the fluctuation in weights, also variations in temperatures, together with the number of days they lived.



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TABLE OF WEIGHTS AND TEMPERATURES OF TREATED GUINEA PIGS.

		DESIGNATION OF ANIMALS.									
		15		16		18		19		20	
		Temp.	Wt.	Temp.	Wt.	Temp.	Wt.	Temp.	Wt.	Temp.	Wt.
At inoculation			357		378		320		308		270
1st day A.M.			360		400		310		307		262
2nd "	"		355		405		305		310		256
3rd "	"		355		382		310		310		260
4th "	"		355		377		297		320		260
5th "	"		355		380		300		315		260
6th "	"		355		377		305		310		260
7th "	"		355		375		310		310		265
8th "	"	103.2	360	103.3	375	102.2	315	102.8	325	103	265
9th "	"	103	350	103.2	375	102	305	103	325	103	260
10th "	"	103	345	103	372	102	300	103.2	327	102	220
11th "	"	103	305	102.4	335	101.6	270	102.6	270	103.4	
	P.M.	103.6		103.6		103.4		104		103.4	
12th "	A.M.	103.4	300	103	310	102.8	255	102.4	260	102.2	210
	P.M.	103		104		104.4		103.2		103	
13th "	A.M.	103.2	295	102.2	320	103	250	102.1	245	102	220
	P.M.	104.2		103.4		103.4		104.2		103	
14th "	A.M.	103	295	103.6	310	102.8	255	102.4	250	102.6	205
	P.M.	105		104		103.4		103.8		103.4	
15th "	A.M.	103	290	103.4	320	102.6	250	102	245	102.4	200
	P.M.	104.6		104		103.4		104.4		103	
16th "	A.M.	103	285	103	305	102.6	255	102	240	102.2	200
	P.M.	104.6		104.6		104		103		103.4	
17th "	A.M.	104.4	290	104.6	320	103.8	265	103.4	255	103.1	205
	P.M.	104.4		104.4		104.8		104.2		104	
18th "	A.M.	105.2	320	104.4	350	105	280	104.6	275	104.4	235
	P.M.	105.8		105		104.6		104.2		104.6	
19th "	A.M.	105.8	305	105	340	104.6	275	104.4	270	104	230
	P.M.	105.6		105.2		105.6		104.8		104.6	
20th "	A.M.	104.2	290	105	330	104.6	275	104.4	265	104.2	225
	P.M.	104.6		105		104.6		104.2		105	
21st "	A.M.	103.6	295	105	320	104.6	270	104.6	265	104	225
	P.M.	103.8		105		105		104		104	
22nd "	A.M.	102	270	102.6	295	101.4	250	102	245	101.6	210
	P.M.	104		105		164		104		104.8	
23rd "	A.M.	104	290	104	305	103	255	103.4	255	103.8	210
	P.M.	103.6		104.8		104.2		104.6		104.6	
24th "	A.M.	103	290	104.4	310	104	255	104	250	103.6	210
	P.M.	104.6		104.6		105		106		105	
25th "	A.M.	103.6	285	105	310	104	255	104.6	250	104.2	210
	P.M.	104		105		103		103.2		103	
26th "	A.M.	103.8	295	103.8	300	103	250	104.2	250	103.3	200
	P.M.	104		104.6		104		104.6		104.3	
27th "	A.M.	103	290	103.4	305	102.6	245	103.4	250	103.2	205
	P.M.	104		105		104		105		103.6	
28th "	A.M.	103.6	300	105	315	103.4	255	103.6	260	102.8	210
	P.M.	104		104.6		103.8		104.4		104	
29th "	A.M.	104.6	280	104	290	103	245	103.6	245	103.6	200
	P.M.	104		104.6		104		104		104.6	
30th "	A.M.	103.6	275	103	305	103.8	250	103.6	250	103	205
	P.M.	104		104		104		104		103.6	
31st "	A.M.	104.3	290	105	310	103.6	255	104	270	104	220
	P.M.	103.2		104		103.6		103.4		104.6	
32nd "	A.M.	104.2	280	104.6	295	103.6	240	103	255	104.6	205
	P.M.	104		104		104.8		104		104.2	
33rd "	A.M.	103.8	280	103.4	300	103.6	240	103.6	260	104	205
	P.M.	104		104.2		104.4		104.6		104.2	
34th "	A.M.	104.4	285	104.6	305	104	245	103.6	265	104	210
	P.M.	103.6		104		103.6		104.4		103.6	
35th "	A.M.	104	295	104.4	285	104	285	104	250	104.2	200
	P.M.	103.6		103.6		103		103.6		103	
36th "	A.M.	104.2	275	104.2	310	100.6	225	104	260	104.4	195
	P.M.	104.6		104.2		104		104.6		104.2	



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TABLE OF WEIGHTS AND TEMPERATURES OF TREATED GUINEA-PIGS—*Concluded.*

			DESIGNATION OF ANIMALS.									
			15		16		18		19		20	
			Temp.	Wt.	Temp.	Wt.	Temp.	Wt.	Temp.	Wt.	Temp.	Wt.
37th	day	A.M.	104.4	255	104.6	300	103.4	255	103.4	255	104.2	190
		P.M.	104.		104.2				104.3		104.	
38th	"	A.M.	104.	270	104.2	320	dead.	195	104.	275	104.6	200
		P.M.	104.		104.2				104.4		104.	
39th	"	A.M.	103.	265	104.	290			104.	255	dead.	175
		P.M.	103.		104.6				103.6			
40th	"	A.M.	104.	280	103.6	295			104.1	180		
		P.M.	103.		101.4				103.4			
41st	"	A.M.	102.	215	dead.	265			108.6	215		
		P.M.	100.6						102.2			
42nd	"	A.M.	104.4	265					102.4	265		
		P.M.	104.4						104.4			
43rd	"	A.M.	103.6	250					104.	260		
		P.M.							103.6			
44th	"	A.M.										
		P.M.	103.4	245					104.2	260		
45th	"	P.M.	103.	230						235		
46th	"	A.M.	103.	240					104.	250		
		P.M.	dead.	215					103.			
47th	"								No observation			
48th	"								Chloroformed.			

Another point worthy of mention in connection with the treated animals is the abscess formed at the point of inoculation. The abscess formed, broke externally, discharging the characteristic pus of a tubercular abscess, but in these treated animals a process unlike that seen under ordinary circumstances was noted. There was a gradual healing of the wound instead of an extension. During this healing process the pus was less watery than usual, new granulations were observed and in two cases the abscesses healed. After this healing process pus again formed, the external wall becoming very thin, and there was a total enucleation of the abscess. It is unfortunate that the date of this occurrence in these two animals was not noted, nor the dates of the cessation of the discharge and the closing of the abscess wound. The enucleation of the abscess was noted by the attendant in charge, but the healed lesions together with the fresh granulations were seen by the writer.

Unforeseen circumstances necessitated the destruction of the longest lived animal designated as No. 19. While lesions of a generalized character were found at the autopsy it is more than probable that had it been possible to continue the treatment, this animal would have lived for quite a number of days.

CLINICAL OBSERVATIONS OF THE UNTREATED ANIMALS.

The guinea-pigs used for checking the results in the treatment of tuberculosis by currents of high frequency, presented nothing out of the ordinary during the course of the disease. There was a gradual rise in temperature as is ordinarily seen in animals inoculated with virulent tubercular material. The elevation in temperature persisted with more or less regularity up to the time of their deaths. The weight of these animals fluctuated, gradually becoming less and less toward the fatal issue. The animals died in 17, 22, 27 and 48 days, respectively. Why this last mentioned animal lived so much longer than the others is unexplained, the course of the disease being typical though not as acute as in the other instances.



## SESSIONAL PAPER No. 15

## MICROSCOPICAL EXAMINATIONS OF BLOOD AND PUS.

Examinations were made daily of blood smears, and as soon as the abscesses commenced discharging, smears of the pus were made and examined. These examinations were not made in the case of each individual animal, but two animals from each series, the treated and untreated, were selected. In no instance were tubercle bacilli detected in the smears of blood of either series of animals, although a careful search was made daily, of two smears from each animal from which material was taken.

In the pus bacilli were present in both series. Nothing characteristic was noticed in connection with the bacilli seen in the pus from the untreated animals, either in the method of taking and retaining the stain, nor in the grouping or shape of the bacilli.

With the treated animals, the changes in the grouping of the bacilli in the pus together with the manner in which the stain was taken and held were peculiar. There were also a far greater number of bacilli present in the smears than is usually seen, increasing as the treatment progressed. The first changes noted occurred on the eighth day of treatment or the eighteenth day of the disease. At this time clumps of bacilli were noted together with the giving up of the stain\* by certain bacilli while others seemed not to have taken the stain at all. While the clumping was first noted at this time, this characteristic was not as marked as it was a few days later, from which time it continued to remain constant throughout the course of the disease. On and after the twelfth day of treatment (twenty-second day of disease) the decolorizing was more easily accomplished, and provided that the Gabbet's Blue was used the usual length of time the bacilli were relieved of the greater part if not all of their red dye. By experiment it was found that in order to have the bacilli retain their characteristic stain it was necessary to reduce the time of exposure to the effects of this decolorizing and counter staining agent to three-fourths the usual period. Twenty per cent solutions of nitric and hydrochloric acids were used with similar results to decolorizing.

In some of the specimens of pus, the bacilli were decidedly shorter and thicker than normal. These peculiar forms have been noted only in films from the animals treated by electrical currents, and not in connection with any investigations on other tuberculoses in which a virulent bovine germ has been used as the infective agent. While these stumpy forms were not numerous, they were fairly constant in the preparations of pus from the animals in question. Another peculiarity noted with the films was the consistency of the pus and the nature of the film produced. Films made from the pus of untreated animals were very even, while those made from the pus of animals receiving treatment were uneven and streaked, it being more difficult to obtain a preparation suitable for microscopic examination.

It may be well to mention that the examinations of the slides, both blood and pus smears, were carried out without the knowledge at the time of the examination as to whether a given slide came from a treated animal or one that was untreated. The slides were taken and numbered by the attendant, comparisons not being made till the completion of the microscopic examinations, thus avoiding any personal prejudice for or against the experiments.

## PATHOLOGICAL FINDINGS.

The untreated guinea-pigs presented the usual changes noted in cases of acute miliary tuberculosis from the incipient tubercular infection to caseating nodules. These changes were noted particularly in the lungs, liver, spleen and lymphatic glands throughout the system. The superficial lymphatic glands particularly were affected, indicating that the infection was mainly carried through the lymph channels. The lesions in the treated animals presented a similarity in the involvement of the same organs and lymphatic system, but the lesions were more clearly defined from the healthy tissue,

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\*The stains used in all of the examinations were, Ziehl-Neilsen's Carbol Fuchsin and Gabbet's Blue. A sufficient amount of staining material was freshly prepared for this work, that variations in the staining properties of the bacilli might be carefully studied.



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especially was this true in the liver and spleen. Caseation was not a marked feature of the lesions. Microscopically this definition between the diseased and healthy tissue is also marked indicating that agencies other than the normal resistant power of the individual have been at work in the effort to aid nature in the struggle between the bacilli and the body cells.

## SUMMARY.

These experiments, aside from being very interesting, teach that these high frequency electrical currents exert some beneficial influence in the effort of the system to overcome the effects usually produced in animals infected with the bacillus tuberculosis. We have an average life in the treated animals of 42·4 days ; while those in which the disease was allowed to run its course, we have as an average life 28·5 days. This gives us a period of 15·9 days in favour of the treatment. In these examinations the two animals dying of septicaemia are not included, nor is the one which met with an accident during manipulations.

To say the least the results here recorded are very encouraging, the more so when it is considered that the germ used in infecting the experimental animals was a very virulent type, in fact much more so than is ordinarily met with in human tubercular infections. Again, the disease was pretty well advanced at the commencement of the treatment as is evidenced not only by the length of life in the untreated animals, but also by the animals inoculated preliminary to the experiments, from which the infective agent was obtained, and by the temperature record. These experiments are worthy of repetition with a germ of a less virulent type, conforming to that usually found in cases of human tuberculosis. The period of exposure could with advantage be extended to thirty minutes daily and given at one sitting, allowing the animals under observation the remainder of the 24 hours in which to recuperate from its effects. As we look back and study the records, it seems that the best results cannot be obtained by a treatment in the afternoon, when the temperature is at its height and the functions of the animal are already in a chaotic state.

We hope to pursue these investigations in the near future and will benefit by the experience already gained in conducting the experiments here recorded.

## PICTOU CATTLE DISEASE.

This affection which still manifests itself in the locality from which it receives its name, has received but slight attention since the investigations by Dr. Wyatt Johnson in 1892 and that made by Dr. J. G. Adami, Pathologist to the Medical Faculty, McGill University, in 1894 and 1895.

In taking up the investigation of this affection, the work of this year has been only preliminary, with a view to determine the manner in which the best results may be had in an investigation having for its object the elucidation of the primary cause of the disease, that preventive measures may be taken. The material for this preliminary work has been taken in the field by Dr. W. H. Pethick who has had training in laboratory methods and I wish here to express my gratitude to him, for the condition in which such material has reached the laboratory.

The germ described by Dr. Adami as the causative agent of this affection has been found in the preparations forwarded. Aside from the finding of this germ and the lesions described by previous investigators on this subject, nothing of marked interest has been learned.

## HOG CHOLERA.

The thorough investigation of hog cholera and allied diseases has received very little attention in Canada. Although more or less trouble has occurred from swine



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diseases for many years, there is no record of a thorough scientific investigation as to their nature and method of prevention.

The recent outbreak in the county of Kent has afforded material for the pursuit of this work, and there are now in the laboratory numerous cultures from the various localities, together with a series of specimens which will enable an investigation of the subject that will prove a valuable adjunct to the pathology of swine diseases as seen in Canada. At present these investigations are just begun, hence the impossibility of giving a scientific report on their results. However, there are three points which have impressed themselves very forcibly, namely: The nature of the lesions, the presence of lung worms and the presence of intestinal worms. The nature of the lesions indicates that the disease has been of long standing; scarcely an outbreak occurring (from which organs have been received at the laboratory), where lesions indicating that a chronic non-fatal type of the disease has continually menaced the herd for a considerable period. This type, while not particularly injurious to the individual, may at any time convey to contact animals a most virulent and fatal type of the disease. Lung worms have been present in greater or less numbers in the lung specimens from nearly every outbreak. Intestinal worms have also been very abundant, appearing in all the specimens from the county of Kent. While these worms, both those of the lungs and the intestines, have no direct connection with the outbreaks, which are due to a specific bacillus, they undoubtedly exert a detrimental influence in the economical production of pork, and predispose the affected animals to any infection with which they come in contact.

## GLANDERS.

With this disease no investigations on distinct original lines are as yet under way, but a number of diagnoses have been made both from material furnished by practitioners, and material which I have myself obtained in the city of Ottawa. With a means of diagnosis such as is afforded by the use of mallein, diagnosis by means of animal inoculations are tedious and of little value. These animal inoculations, however, have furnished material for the production of mallein, and during the past month one hundred doses of this product have been manufactured, which gives typical reactions not only in experimental animals, but in diseased horses. In the future there will be no difficulty in furnishing sufficient mallein to supply the needs of the department.

From September 10, at which time the dispensing of mallein was placed in my hands, 137 doses have been furnished veterinary inspectors and veterinary practitioners, on instructions from the Chief Veterinary Inspector.

## TUBERCULIN.

On July 15 the dispensing of tuberculin was placed in my hands, relieving Prof. F. T. Shutt, chemist at the Central Experimental Farm, of this duty. Since that date 23,760 minims, a sufficient quantity to test 396 head of cattle, has been supplied to the various veterinary inspectors, veterinary practitioners and others, on instructions from the Chief Veterinary Inspector.

## EXAMINATION OF SPECIMENS SENT FOR DIAGNOSIS.

During the past year as heretofore the examination of specimens sent for diagnosis has occupied considerable time, there having been examined some 32 series of specimens from various sources.

I have the honour to be, sir, your obedient servant,

CHAS. H. HIGGINS, B.S., D.V.S., *Pathologist.*

The Honourable the Minister of Agriculture, Ottawa.



No. 17.

## CATTLE QUARANTINE.

(M. C. BAKER, D.V.S.)

MONTREAL, October 31, 1902.

SIR,—I beg to report that for the year ending October 31 ult., there were inspected and passed for shipment at the Canadian Pacific Railroad stockyards, 37,938 head of cattle and 25,528 sheep, distributed monthly as follows:—

	Cattle.	Sheep.
November, 1901 . . . . .	3,170	5,405
May, 1902 . . . . .	5,815	736
June " . . . . .	4,243	5,587
July " . . . . .	5,265	4,066
August " . . . . .	8,257	1,769
September " . . . . .	5,258	4,956
October " . . . . .	5,930	3,009
Total . . . . .	37,938	25,528

Of these 499 head of cattle were from the United States, the balance of the cattle and all the sheep were Canadian.

Among the cattle and sheep passed for shipment, 3,280 head of cattle and 1,811 sheep were loaded at Quebec. There being no stockyards at Quebec, the cattle were inspected and marked here, taken to Quebec during the night and loaded on to the ships directly from the cars at daybreak. This arrangement under the present condition of affairs greatly facilitated the handling of the stock.

During the past year 44 head of cattle and 15 sheep were rejected as unfit for shipment for reasons as follows:—For actinomycolosis, 6 cattle, mange, 2 cattle, injuries, 33 cattle, blindness, 3 cattle, and 15 sheep for injuries.

The remarkable freedom from disease enjoyed by Canadian cattle is a matter of extreme satisfaction to all who are interested in the development of this important source of wealth.

I am pleased to be able to report that the cattle from the North-west ranges, indicate that greater care is being taken in selection of bulls for breeding purposes, evidenced by the increased numbers of high grade beef animals that are being exported, all in splendid condition.

There still continues to be a large number of Canadian live stock exported from the Canadian Pacific Railway stock yards, via Boston and Portland.

I have the honour to be, sir,

Your obedient servant,

M. C. BAKER,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No. 18.

## CATTLE QUARANTINE.

(CHARLES McEACHRAN, D.V.S.)

MONTREAL, October 31, 1902.

SIR,—I beg to report that for the year ending October 31, last, there were inspected and passed for shipment at the port of Montreal 655 horses, distributed monthly as follows :—

November, 1901.....	178
May, 1902.....	158
June.....	79
July.....	79
August.....	41
September.....	64
October.....	56
Total .....	655

Of the above, 51 horses were held back for the following, 27 horses suffering from strangles and 24 from influenza.

There were imported during the same period from Britain to Canada, inspected and found free from contagious or infectious diseases, 219 stallions, 14 mares and 20 jackasses.

I have the honour to be, sir,

Your obedient servant,

CHARLES McEACHRAN,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



## No. 19.

## CATTLE QUARANTINE.

(B. A. SUGDEN, D.V.S.)

MONTREAL, October 31, 1902.

SIR,—I have the honour to report to you the number of cattle and sheep that have been inspected for shipment at the Grand Trunk stock yards, Montreal, during the period extending from November 1, 1901, to October 31, 1902.

The monthly shipments were as follows :—

	Cattle.	Sheep.
November, 1901. . . . .	2,344	5,859
May, 1902. . . . .	6,038	348
June, " . . . . .	4,417	1,544
July, " . . . . .	5,665	5,690
August " . . . . .	5,189	3,656
September, " . . . . .	6,971	5,381
October, " . . . . .	6,311	4,555
	<hr/> 36,935	<hr/> 27,033

Included in the above figures are 707 cattle and 854 sheep from the United States. Forty cattle were rejected, 30 for injuries or lameness and 10 for actinomycosis.

There were also rejected for various reasons 51 sheep.

No disease was found in the American cattle or sheep.

The quality and condition of the cattle was about the average, certainly not above it, the improvement in condition so much to be desired not having as yet made itself manifest.

During the same period the following stock passed through the yards on their way to British ports.

Via Boston.		Cattle.	Sheep.	
United States . . . . .	9,294	United States . . . .	28,868	
Canadian . . . . .	20,871	Canadian . . . . .	4,998	
Total . . . . .	<hr/> 30,165		<hr/> 33,866	
Via Portland.				
United States . . . . .	3,670	United States . . . .	20,260	
Canadian . . . . .	24,353	Canadian . . . . .	11,636	
Total . . . . .	<hr/> 28,023		<hr/> 31,896	

I have the honour to be, sir,

Your obedient servant,

B. A. SUGDEN, *Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No 20.

## REPORT OF VETERINARY INSPECTOR AT MONTREAL.

(V. T. D'AUBIGNY, V.S.)

MONTREAL, QUE., October 31, 1902.

SIR,—I have the honour to submit to you my report of cattle inspected during the year ending October 31, 1902.

I have tested 28 pure bred cattle for export to the United States ; also 24 cattle which were not for export.

I have the honour to be, sir,

Your obedient servant,

The Honourable  
The Minister of Agriculture,  
Ottawa.

V. T. D'AUBIGNY, *Inspector.*

No. 21.

## CATTLE QUARANTINE.

(A. E. MOORE, D.V.S.)

OTTAWA, October 31, 1902.

SIR,—I have the honour to submit to you the following report of work done by me during the year ended October 31, 1902.

As it was deemed advisable to have the office of the chief veterinary inspector situated in your department, in order that the affairs of this branch should be directed from Ottawa, I, therefore, at the request of Dr. Rutherford, moved to Ottawa from Montreal in the early spring. This change has greatly facilitated my work in many respects.

When not engaged in my duties as travelling inspector, I have assisted Dr. Rutherford in the department, and during his occasional absence from Ottawa I have performed the duties of acting chief inspector.

## TUBERCULOSIS.

During the year I have tested with tuberculin 139 cattle for export to the United States, seventy being in the province of Ontario and sixty-nine in the province of Quebec, twenty-one of them reacted and were, therefore, not allowed to be shipped.

I also tested sixty-four cattle which were not for export, of these twenty reacted.



HOG CHOLERA.

I have dealt with three different outbreaks of hog cholera this year, namely, at :—

Collingwood, Ont.	.....	3 farms where	88 hogs were killed.
Lavender	" .....	2 " "	19 "
Hickson	" .....	1 " "	283 "

The Hickson outbreak was a most serious one. Fortunately the department was duly notified, and the disease was dealt with promptly and did not spread to other farms. There were a large number of hogs being fattened in pens adjoining this farm, and the farmers of the neighbourhood were very much alarmed lest the disease would spread. I, therefore, used the utmost precaution in dealing with this outbreak.

Mr. John King, the owner of these hogs, bought them in the vicinity of Dresden, Kent county, where hog cholera has existed for some years. They were brought to Hickson early in May, and on my arrival on May 19 there were twenty-seven dead and 121 sick pigs, the disease assuming a most virulent form. This case illustrates the fact that a change of environment in some way often causes the disease to assume a virulent form. In the post mortem I found a few chronic cases, and it is probable that infection started from these, in which the disease was latent.

I made a thorough inspection of the swine on farms in the immediate neighbourhood of each of the above outbreaks.

SUSPECTED HOG CHOLERA.

Numerous reports came to our notice where hog cholera was suspected. I visited many farms both in Ontario and Quebec, but found sickness in swine principally due to injudicious feeding or to bad hygienic surroundings, often both these conditions combined. Pneumonia and verminous bronchitis were very prevalent, the cold damp spring and summer being particularly favourable for these maladies.

Many cases of gastric troubles, both chronic and acute, were seen. A farmer near Toronto, who was feeding his pigs on hotel swill which contained strong alkalies (powdered soaps which are used in washing dishes), had over one hundred sick and unthrifty pigs. I also saw many lame and crippled hogs, their condition being due to feeding largely on highly carbonaceous foods.

GLANDERS.

During the outbreak of glanders in the city of Ottawa and vicinity, I have assisted in the inspection and also the testing with mallein of suspected cases.

I have tested thirty-two horses, five of which reacted. Seven horses that showed marked symptoms of glanders were destroyed without having to resort to the test.

I have inspected a large number of horses clinically in and around Ottawa and Hull, being suspected cases reported to us by the city police and others.

Dr. J. J. McGregor, of Carleton Place, Ont., reported two cases of glanders to the department. I visited Carleton Place and found two well marked cases of glanders. Both horses were destroyed, and the premises properly disinfected.

In my report of last year I mentioned that Mr. L. P. Cramer, of Windsor Mills, P.Q., had contracted glanders from his horses. I am sorry to inform you that Mr. Cramer died last September, having been ill for nearly two years with this dread disease.

BLACK-QUARTER.

Very few deaths from black-quarter have come to my notice this year. I visited five farms where the disease existed, but only a few deaths occurred on each. A change of pasture usually checked the disease.



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## OTHER REPORTS.

In July I inspected two hundred head of grade heifers at Cobden and Eganville, Ont., which were bought by the Indian Department for the reserve at Gleichen, Alberta. All were in good health and arrived at their destination safely.

In September it was reported that a number of cattle were dying from anthrax in the neighbourhood of Bury, P.Q. Acting on your instructions I proceeded to that place, and after a thorough investigation no anthrax could be found. Dr. Higgins examined several samples of blood which I submitted to him, but no anthrax bacilli were present.

I was unable to arrive at any definite conclusion regarding the nature of this disease. The first symptoms were dulness, high temperature—106° to 108° F.—which lasted for about two days; this was followed by dysentery, the temperature dropping to normal, some cases subnormal. There was great weakness, loss of appetite, hurried breathing and weak pulse. About eight cattle presenting the above symptoms died; the others that were attacked made a slow recovery. The disease did not seem to be contagious, as only an animal here and there took it, and some of the farms were several miles apart.

I was only able to perform one satisfactory post mortem. In the cæcum and colon were great clots of blood, in fact all the blood of the animal. There were no hæmorrhagic areas or serous exudate present in any part of this animal to indicate that the disease might be hæmorrhagic septicæmia. In fact there was no evidence of pathological changes in any of the organs.

A number of young cattle died in this vicinity some time before my visit, and by the description of the symptoms I am quite certain the disease was black-quarter.

On September 15 I visited Metcalf, Ont., for the purpose of investigating the cause of death in cows belonging to Mr. Samuel Woods.

Four cows were taken sick in one night. Three of them died quite suddenly, and the other recovered after a severe illness.

There was no evidence of any contagious disease, but there was a strong suspicion of poisoning.

I have the honour to be, sir,

Your obedient servant,

A. E. MOORE,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 22.

## REPORT ON POINT LÉVIS CATTLE QUARANTINE STATION.

(J. A. COUTURE, D.V.S.)

QUEBEC, P.Q., October 31, 1902.

SIR,—I have the honour to send my yearly report of live stock imported into Canada, through this quarantine station, from November 1, 1901, to October 31, 1902, inclusive.



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During that period there have come into quarantine 438 cattle, 368 sheep, 94 pigs, 13 goats, against 408 cattle, 1,026 sheep, 63 pigs for 1900-01.

We have received a total of 913 animals during the season, against a total of 1,497 animals in 1900-01. There was an increase of 30 cattle and 31 pigs; there was a decrease of 658 sheep.

In 1900-01 out of 408 cattle that came in this station, 141 were for the United States; this year out of 438 cattle imported through this quarantine 51 head only went to the United States. Out of the 1,026 sheep imported through this quarantine in 1900-01, 727 went to the States; this year 288 sheep (out of the 368) went to the States.

The cattle were of the following breeds:—Shorthorns, 363; Galloways, 47; Polled Angus, 15; Hereford, 7; Devons, 6.

The sheep were of the following breeds:—Rambouillet, 211; Shropshires, 72; Hampshires, 18; Oxfords, 17; South Downs, 16; Leicesters, 11; Lincolns, 5; Dorsets, 2; Suffolks, 2; Cotswolds, 1.

The pigs were of the following breeds:—Yorkshires, 90; Berkshires, 4.

I have the honour to be, sir,

Your obedient servant,

J. A. COUTURE, *Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

#### No.23.

### REPORT ON ST. JOHN CATTLE QUARANTINE STATION.

(J. H. FRINK, V.S.)

ST. JOHN, N. B., October 31, 1902.

SIR,—I beg to submit my annual report concerning duties performed at this station.

The following animals were inspected for export:

11,528 cattle,	6,046 sheep,	100 horses,	shipped to....	Great Britain.
36 "	825 "	.....	"	.... France.
23 "	.....	.....	"	.... United States.
5,775 horses.....	.....	.....	"	.... South Africa.

Making a total of 24,333 head shipped.

The number of animals condemned was very small. One bull, suffering from actinomycosis, and one sheep suspicious of 'scab'. Five cattle were detained from injuries in transit, and six sheep were ordered to be slaughtered, from injuries received in a like manner. The percentage of deaths, occurring among sheep in transit has decreased, but greater care should be exercised in the loading of long woolled sheep, as there is considerable overcrowding.



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Imports of animals through the St. John quarantine :—

Cattle.....	59	from Great Britain.
Cattle.....	8	} “ United States.
Sheep.....	12	
Swine.....	9	
Horses.....	4	“ Scotland.

## TESTING OF ANIMALS FOR TUBERCULOSIS.

Twenty-three animals were tested for export to the United States and passed satisfactorily. No requests have been made by local breeders for the testing of animals for tuberculosis. The declarations made by Professor Koch in Europe, in reference to the immunity which the human race enjoys from infection of bovine tuberculosis, appear to have been entirely satisfactory to our boards of health, who thus get rid of a troublesome question, and many of those who had determined to rid their farms of this plague have become apathetic.

## INSPECTION FOR TUBERCULOSIS.

My attention was called by the chief inspector to the fact that certain animals which had been tested and re-acted in Nova Scotia, had escaped quarantine, and had been transported to St. John. These animals were located and disposed of satisfactorily. The remainder of the herd was also located in Nova Scotia, and duly quarantined.

## FACILITIES FOR ACCOMMODATION OF EXPORT LIVE STOCK.

Additional shed-room has been provided by the Canadian Pacific Railway at West St. John, and there exist now comfortable quarters, for nearly 2,000 head of cattle. If shippers would take advantage of these facilities, and forward their cattle in good time for food and rest, the loss among cattle shipped across the ocean, from the port of St. John, would be reduced to a minimum.

There is no contagious disease among animals in the province, except actinomycosis and tuberculosis.

I have the honour to be, sir,

Your obedient servant,

JAMES H. FRINK,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



No. 24.

REPORT ON HALIFAX CATTLE QUARANTINE STATION.

(WM. JAKEMAN, D.V.S.)

HALIFAX, N.S., Oct. 31, 1902.

SIR,—I beg leave to submit the following statement of animals inspected by me during the twelve months, ended October 31, 1902 :—

EXPORTED.

Horses .....	63
Cattle.....	207
Sheep .....	1813
Swine.....	7

IMPORTED.

Horses.....	14
Sheep.....	6

I have the honour to be, sir,

Your obedient servant,

WM. JAKEMAN,  
*Inspector*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 25.

REPORT AND STATEMENT OF CATTLE SLAUGHTERED FOR PICTOU CATTLE DISEASE.

(GEORGE TOWNSEND, V.S.)

NEW GLASGOW, N.S., Oct. 31, 1902.

SIR,—I have the honour to submit herewith a statement showing the number of cattle slaughtered for ‘ Pictou Cattle Disease’, and the amount of compensation paid therefor, during the 12 months ended October 31, 1902.

I have the honour to be, sir,

Your obedient servant,

GEORGE TOWNSEND,  
*Inspector.*



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STATEMENT of cattle slaughtered and amounts paid in compensation from November 1, 1901, to October 31, 1902.

Month.	Number Slaughtered.	Amount Paid.
		\$ cts.
November, 1901.....	2	16 00
December .....	2	16 00
January, 1902.....	2	13 33
February. ....	1	10 00
March.....	3	25 00
April .....	3	25 00
May.....	15	135 00
June.....	45	360 65
July.....	18	146 00
August .....	17	135 00
September .....	12	90 35
October .....		
Total.....	120	972 33

GEORGE TOWNSEND.  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 26.

REPORT ON HEALTH OF LIVE STOCK IN ONTARIO.

(PROFESSOR ANDREW SMITH, F.R.C.V.S.)

Toronto, Oct. 31, 1902.

SIR,—I have the honour to submit the following brief report on the health of the domestic animals in Ontario during the past year.

HORSES.

Influenza and strangles prevailed to a considerable extent during the early part of the year, and especially in connection with large stables. During the summer it has, to a great extent disappeared, and at present the general health of horses is good. Three horses affected with glanders were destroyed in Hamilton.

CATTLE.

In this section, cattle have generally been healthy. There have been no evidences of enzootic or epizootic diseases. A large number of cattle are brought from various parts, principally north and west of here, to the cattle market, Toronto. These are mostly good grades, fat and healthy, in prime condition for butchering. Any of



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them that present any evidences of abnormal conditions or disease, are detained and butchered under veterinary inspection, and as a result of the post mortem examinations only a very few carcasses have been condemned as unfit for food.

## SWINE.

No outbreaks of contagious disease in this locality, but several outbreaks of hog cholera have occurred in the western part of the province.

## SHEEP.

Also healthy.

I have the honour to be, sir,

Your obedient servant,

ANDREW SMITH, F.R.C.V.S.

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 27.

## REPORT ON POINT EDWARD CATTLE QUARANTINE STATION.

(ARTHUR BROWN, V.S.)

SARNIA, October 31, 1902.

SIR,—I have the honour to submit my report of cattle and swine received into the Ontario cattle quarantine at Point Edward from November 1, 1901, until October 31, 1902.

There have been no diseased animals in quarantine this year, and I may state that no contagious disease exists in this district at present, with the exception of some cases of tuberculosis and actinomycosis.

The following is a statement of the animals which entered Canada from the United States at this port during the past twelve months :—

Cattle, 103 valued at .....	\$18,665
Sheep, 305       “ .....	8,000
Swine, 14       “ .....	355

I have the honour to be, sir,

Your obedient servant,

ARTHUR BROWN,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No. 28.

## REPORT OF VETERINARY INSPECTOR AT NIAGARA FALLS, ONT.

(S. E. BOULTER, V.S.)

NIAGARA FALLS, October 31, 1902.

SIR,—I have the honour to report that very few diseases of a contagious character have occurred amongst the domestic animals in this district during the past year.

Recently hog cholera has made its appearance on six farms in the vicinity of Black Creek, appearing first on the farm of Horace Beam in a chronic form. Not suspecting cholera, Mr. Beam admitted neighbours on the premises and allowed some hogs to be removed. In this way, no doubt, it was carried to adjoining farms.

On my first visit or two I could not find on post mortem examination any lesions of hog cholera. In fact, symptoms were very obscure; so sent viscera taken from some that had been sick for several days to the department for bacteriological examination, and promptly received a message stating the disease was cholera. I then destroyed all hogs on the farm and had the premises thoroughly disinfected. I noticed as the disease appeared on the adjoining farms it was more virulent in character. Symptoms became very well marked within a short period of sickness. All hogs have been slaughtered where disease has existed, and places thoroughly disinfected. The bulletin issued by the department has been distributed among the farmers, and they are acquainting themselves with the nature of the disease and taking every precaution against it spreading. The source of origin in this outbreak is still a profound mystery.

The following animals entering Canada from the United States at Niagara Falls were inspected and quarantined by me during the twelve months ended October 31, 1902. They were all found to be healthy, and were forwarded to their destinations:—

Cattle.....	13
Sheep.....	29
Hogs.....	12

I have the honour to be, sir,

Your obedient servant,

S. E. BOULTER,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



## No. 29.

## REPORT OF VETERINARY INSPECTOR AT KINGSVILLE, ONT.

(M. B. PERDUE, V.S.)

KINGSVILLE, October 31, 1902.

SIR,—I beg to submit, herewith, my report for year ending October 31, 1902.

I am glad to say that since my last annual report, this district, South Essex, has been free from hog cholera and swine plague, which had been constantly recurring for many years back.

On July 4 it was reported that some dead hogs had come ashore along the bank of the Detroit river, in Malden township. A previous outbreak of hog cholera had occurred from this cause in 1900. I investigated the matter as far as possible, but was unable to trace the origin of the carcasses.

On August 15, by request of Mrs. Grove Whaley, of the township of Gosfield South, I visited her farm and inspected the hogs. Finding them showing symptoms resembling swine plague, I placed them under quarantine on suspicion, afterwards releasing them.

On October 1, I was called to Kent county by telegram from the department to assist in suppressing an outbreak of hog cholera there. Under instructions of Dr. Tennent, I worked there along with Dr. Orchard, of Windsor, Dr. Thorne, of Wallaceburg, and Dr. Kime, of Chatham, and during the month dealt with 23 outbreaks, involving the slaughter of 961 hogs. Of these only 65 were contact animals, showing the extreme virulence of this epidemic. On October 29 I was called to Middlesex county to investigate a suspected case of swine plague on the farm of Mr. D. Leitch. I placed his hogs under quarantine on suspicion, but afterwards released them, as the disease did not develop.

I have the honour to be, sir,

Your obedient servant,

M. B. PERDUE,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No. 30.

## REPORT OF VETERINARY INSPECTOR AT CHATHAM, ONT.

(JOS. KIME, JR., V.S.)

CHATHAM, October 31, 1902.

SIR,—I have the honour to submit herewith my annual report for the twelve months ended October 31, 1902. Owing to the very serious outbreak of hog cholera in this district, covering nearly the whole of the county of Kent, which has kept me exceedingly busy for some time past, I have been prevented from preparing a more lengthy report.

During the past twelve months I have slaughtered on account of hog cholera the hogs on 147 farms, which have been placed under quarantine. Previous to July, I inspected 72 farms on which hog cholera had existed and satisfied myself that cleansing and disinfection had been properly carried out. These farms I recommended should be released from quarantine.

This outbreak of hog cholera is a very serious one, and I am glad to say that almost all veterinary surgeons and farmers understand that it is necessary that every one should take a helping hand in endeavouring to stamp it out. A great many farmers are slaughtering all hogs that shippers will take, and also fattening their brood sows, as they consider it too risky to keep many hogs at the present time.

I have the honour to be, sir,

Your obedient servant,

JOS. KIME, JR.,  
*Inspector.*The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 31.

## REPORT OF VETERINARY INSPECTOR AT WALLACEBURG, ONT.

(J. R. THORNE, V.S.)

WALLACEBURG, ONT., October 31, 1902.

SIR,—I beg to report that during the first ten months of the year ended on October 31, 1902, there was comparatively little disease among the domestic animals in my district, but I am sorry to report, that during the last two months the outbreak of hog cholera or swine plague has been the most severe and far-reaching in its effects of any outbreak during my term of office.



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The present outbreak originated near the town of Dresden, and seems to have followed the natural and artificial water courses through the townships of Chatham and Dover.

The past season has been very wet; the streams have overflowed their banks and have thus left the farms and the quarters where swine are kept in a damp and unsanitary condition; many farmers, owing to the excessive rainfall, were unable to harvest their crops and to prevent a total loss thereof, many of them turned their hogs into the fields, and thus allowed them access to large quantities of undesirable food. The apple crop in this district has been enormous, and many farmers have fed large quantities of fallen and inferior fruit to their swine, and while I do not believe this course has actually caused the disease, still I think it has aggravated the outbreak.

I have made frequent visits to the Walpole Island Indian reserve during the past year but have not discovered any actual cases of disease among the swine on the reserve; the Indians take no care of their hogs, allowing them to run at large through the forests and disease might easily exist there without discovery.

The local Indian agent informs me that there are about eight hundred hogs on the reserve; these hogs are never in a thrifty condition, and on account of the lack of care which the owners exercise over their animals, and the irresponsible nature of the inhabitants of the reserve, I would strongly recommend that the present quarantine regulations be continued.

I fear that reports of the outbreaks of hog cholera are not made by the farmers as promptly as they should be, and thus the contagion is spread widely before your officers have an opportunity of enforcing the regulations.

I have the honour to be, sir,

Your obedient servant,

J. R. THORNE,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 32.

## REPORT OF VETERINARY INSPECTOR AT WINDSOR, ONT.

(GEO. W. ORCHARD, V.S.)

WINDSOR, ONT., October 31, 1902.

SIR,—I submit to you my report of work done for the Department of Agriculture, from November 1, 1901 to October 31, 1902.

I am pleased to state that I have had no reports of hog cholera in North Essex since last April. Owing to the heavy losses sustained by the farmers of North Essex in recent years from hog cholera, they have more regard to sanitary and preventive measures than formerly and house their hogs better and feed them with more care. If farmers in general will give their hogs as much care as they give their horses and cattle, they will find the chances of contagion from infectious diseases much lessened.



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The following animals have been inspected by me during the year :—

## FOR EXPORT.

Cattle.....	184
Sheep.....	1
Swine.....	8

## IMPORTED.

Horses .....	8
Cattle.....	33
Sheep.....	34
Swine.....	1

I have the honour to be, sir,

Your obedient servant,

GEO. W. ORCHARD.

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 33.

## REPORT OF VETERINARY INSPECTOR AT LONDON, ONT.

(J. H. TENNENT, V.S.)

LONDON, Ont., October 31, 1902.

SIR,—I have the honour to submit the following report of work done by me during the past year, viz., Nov. 1, 1901 to Oct. 31, 1902.

I beg to report that I have tested for tuberculosis, 381 cattle, intended for export, 19 of which reacted. Certificates were given for 29 animals under six months old. I also made private test of 30 animals, 14 of which reacted and 1 was suspicious.

Cattle in this district are apparently quite healthy, nothing of a special character occurring among them.

Horses have been in good demand and good prices were realized, nothing of a serious nature having broken out among them. Last November quite an epidemic of influenza appeared in this district, with few if any unfavourable results.

In my report of a year ago, I mentioned that I had just completed an investigation of an outbreak of hog cholera at Norwich. About Jan. 12 last, the disease appeared in 5 pigs on a farm in that district, since that time there has been no further trouble, and I consider it stamped out.

On June 15, 1902, the disease appeared near Waterdown, 14 pigs being affected, I could not trace it to place of infection. No further outbreaks occurred in that neighbourhood.

On July 14, an outbreak occurred in the vicinity of London, on 6 farms, 77 hogs being affected.



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On September 15, I investigated a small outbreak at Bright, 26 hogs affected, also at Hickson, 10 pigs affected.

October 20. The disease occurred south-west of Hamilton in 6 store hogs.

The above outbreaks were handled and disposed of as the law directs, as to quarantine, cleaning and disinfecting, and not a single case has yet been reported where contagion spread from these places.

In all the above cases except at Waterdown, the disease was traced to hogs that had been shipped from the west to local packing houses and resold to feeders.

On September 18, 1902, I took charge of a very serious outbreak of hog cholera in the county of Kent. We appear to be getting it under control, not so many new cases appearing, we hope to keep it confined to the area quarantined as affected.

I have the honour to be, sir,

Your obedient servant,

J. H. TENNENT,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 34.

## REPORT OF VETERINARY INSPECTOR AT CALEDON, ONT.

(WM. STUBBS, V.S.)

CALEDON, ONT., October 31, 1902.

SIR,—I have the honour to submit this, my annual report on the inspection of cattle in the province of Ontario, from Nov. 1, 1901 to Oct. 31, 1902. Acting on the instructions received from the Department of Agriculture, I have tested with tuberculin, 406 pure bred cattle for export to the United States, 17 of which reacted.

For particulars with regard to the foregoing, I beg to refer you to the detailed reports which I have from time to time forwarded to your department.

On April 5, acting on instructions received from the department, I visited the farm of Johnston Gibson, lot 10, con. 3, Caledon, where two animals had died from black leg. I had the carcasses properly disposed of.

From Sept. 1 to 3, I visited the farm of William McNabb, Sullivan township, Grey county, to examine into the cause of death in cattle of that district. In my detailed report you will observe that I consider the cause of death was probably due to poisonous plants, which I found to be abundant in the pastures.

I have the honour to be, sir,

Your obedient servant,

WILLIAM STUBBS,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 35.

## REPORT OF VETERINARY INSPECTOR AT ROCKLAND, ONT.

(GEO. W. HIGGINSON, V.S.)

ROCKLAND, ONT., October 31, 1902.

SIR,—I have the honour to submit to you my annual report for the year ending October 31, 1902.

During the year I have tested with tuberculin 162 pure bred cattle which were for export to the United States, five of which reacted. I also tested 275 cattle not for export, eighty-one of which reacted.

On January 21 I was sent by your department to attend the Farmers' Institute meetings at Moncklands, Avonmore, Newington and Berwick to give a discourse on anthrax.

On July 1 I was sent to Merrickville, Ont., to the farm of Mr. Wm. Nicholson to investigate into a reported outbreak of hog cholera among his hogs. I diagnosed the trouble as being verminous broncho pneumonia.

On September 20, acting on instructions received from the department, I visited a farm at Bright, Ont., for the purpose of dealing with an outbreak of hog cholera. Thirty-one pigs were killed, and on post mortem, all but seven showed lesions of hog cholera. Disinfection and disposal of the carcasses was carried out according to the regulations.

I have the honour to be, sir,

Your obedient servant,

GEO. W. HIGGINSON,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 36.

## REPORT OF VETERINARY INSPECTOR AT BEDEQUE, P.E.I.

(W. H. PETHICK, V.S.)

BEDEQUE, P.E.I., October 31, 1902.

SIR,—I have the honour to forward you my report for the twelve months ending October 31. I am glad to be able to say that no contagious disease of animals exists in this very healthy province. Last year I was called upon to deal with an outbreak of symptomatic anthrax, and we feared a recurrence this year, but you will be pleased to learn that all animals on the infected farms remain healthy. I believe this is largely



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due to the thoroughness with which my instructions were carried out by the interested parties.

The reported existence of a contagious disease from which cattle were dying in the vicinity of Crapaud, and which Dr. Rutherford instructed me to carefully investigate was found to be of a non-contagious character and the report as to number of deaths much exaggerated. I am often called to visit different sections of the province to decide as to the cause of death amongst farm animals, but careful clinical and post mortem examination, and in some cases experimental inoculation has proved the disease in every instance to be due to causes other than contagion.

During the winter I have employed the tuberculin test in the examination of a number of herds, and as you will have noticed by the charts which have been forwarded to you from time to time, that not one animal has reacted, and I again beg to give, as my opinion, that this disease is exceedingly rare amongst cattle on this island.

With the permission of the chief veterinarian I have at the present a small flock of sheep under close observation, a few having died from unexplained cause, and although the owner feared contagion and promptly reported the matter, we find nothing to justify this view; and I may mention here that I have had the privilege of looking over about four thousand sheep and lambs coming from all parts of the province, and all appeared to be in excellent health and condition. When at Amherst last December I had the honour of receiving instructions from you to visit the Shemogue district in New Brunswick to inquire into the cause of abortion among cows in that locality. You have already kindly acknowledged receipt of my report on the subject. I may just say that I found the owners anxious and willing to take every precaution to guard against a recurrence, and you will be pleased to hear that the herds are this year free from this very troublesome disorder. On June 24 I had the honour and pleasure of meeting Dr. Rutherford at New Glasgow, and in accordance with his instructions I remained in eastern Nova Scotia until September 1, holding autopsies on animals that had suffered with Pictou cattle disease, and supplying your pathologist with such specimens from each case as he required in his more advanced study of this disease. A report of my work has been forwarded to the chief veterinary inspector.

In compliance with your wish, I have, as in the past, endeavoured to be of service to our stock owners by advising them, both in public meetings and elsewhere, as to the best means of keeping their flocks and herds healthy, i.e., by preventing the introduction of diseased animals, proper feeding and sanitary surroundings.

I have had occasion during the past year, from time to time, in cases where I was undecided as to cause of death, to forward to your pathologist specimens from autopsies which I have held. I have found Dr. Higgins courteous and prompt, and his decisions very satisfactory. Permit me to say that I look upon the establishment of the pathological laboratory at Ottawa as exceedingly helpful to us in our work.

The following inspections were made by me of animals previous to shipment by sea from the port of Summerside during the twelve months ending October 31, 1902, all were free from disease of any kind:—

Horses.....	35
Cattle.....	166
Sheep.....	124
Swine.....	18

I have the honour to be, sir,

Your obedient servant,

W. H. PETHICK,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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## No. 37.

## REPORT OF VETERINARY INSPECTOR AT CHARLOTTETOWN, P. E. I.

(ANDREW A. LECKIE, M.R.C.V.S.)

CHARLOTTETOWN, P.E.I., October 31, 1902.

SIR,—The following is a report of the year's work from November 1, 1901, to October 31, 1902.

Animals inspected for shipment from this port and their destinations:—

	Horses.	Cattle.	Sheep.	Swine.
To Great Britain.. . . .		200	3,803	
" United States.. . . .	1	1	6	
" West Indies and Bermuda.. . . .	49	10		34
" Newfoundland.. . . .	57	800	2,496	35
Total shipped.....	107	1,011	6,305	69

The animals imported at this port were 6 Shropshire ewes from England and 1 thoroughbred stallion, 'Haphazard,' from the United States, for John Richards, Bideford, P. E. I.

I have the honour to be, sir,

Your obedient servant,

ANDREW A. LECKIE,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 38.

## REPORT OF VETERINARY INSPECTOR AT WINNIPEG, MAN.

(CHARLES LITTLE, V.S.)

WINNIPEG, MAN., October 31, 1902.

SIR,—I beg to submit to you my annual report of inspections at Winnipeg for the year ended October 31, 1902.

The following is the total number of animals imported from the United States:—

Horses.....	8,941
Mules.....	245
Cattle.....	2,369
Sheep.....	1,291
Hogs.....	205



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I gave certificates for 262 cattle exported to the United States as stockers and for beef. I also tested 44 head of pure bred cattle for export, one of which was found to be diseased and was slaughtered by the owner, and gave certificates for 2 pure bred sheep and 1 hog for export. I also inspected 500 head of cattle for export in bond through the United States, via Philadelphia to Liverpool.

Of the horses I inspected, 3,629 belonged to settlers and 5,312 were imported by dealers or contractors, or for exhibition and racing.

There have been a number of outbreaks of symptomatic anthrax in different parts of the province this summer, but the loss has not been very heavy. I have advised vaccination of all the calves.

With this exception the cattle have been very healthy. A large number of horses have died this summer with what is known as swamp fever, but I am pleased to know that your department has taken the matter up and instructed Messrs. Bell and Torrance to investigate this disease.

I have the honour to be, sir,

Your obedient servant,

CHAS. LITTLE,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 39.

REPORT OF VETERINARY INSPECTOR AT EMERSON, MAN.

(P. A. ROBINSON, V.S.)

EMERSON, MAN., October 31, 1902.

SIR,—I have the honour to submit herewith the annual statements of stock inspected by me at Gretna and Emerson, Man., for the year ended October 31, 1902.

Statement showing inspections at Gretna :—

Horses.....	150
Cattle.....	8
Sheep.....	43

Statement showing inspections at Emerson :—

Horses.....	379
Cattle.....	429
Sheep.....	45
Swine.....	12

I have the honour to be, sir,

Your obedient servant,

P. A. ROBINSON,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No. 40.

REPORT OF THE COMMISSIONER OF THE NORTH-WEST MOUNTED  
POLICE.

(A. BOWEN PERRY.)

REGINA, ASSA., October 31, 1902.

SIR,—I have the honour to forward my annual report of work performed by the North-west Mounted Police for your department during the twelve months ended October 31, 1902, together with the annual reports of the following veterinary inspectors, which give in detail the various duties performed by them :—

Inspector Burnett, V.S.,	Macleod	District
Staff-Sergt. Coristine, V.S.	Maple Creek	"
Staff-Sergt. Carter, V.S.	Lethbridge	"
Staff-Sergt. Hobbs, V. S.	Calgary	"
Staff-Sergt. Sweetapple, V.S.	Edmonton	"
Staff-Sergt. Mountford, V.S.	Prince Albert	"
Staff-Sergt. Mitchell, V.S.,	Regina	"
Staff-Sergt. Ayre, V.S.,	North Portal	"
Constable Perry, V.S.,	Wood Mountain	"
J. C. Hargrave, V.S.,	Medicine Hat	"
R. Riddell, V.S.,	Calgary	"

The general health of the stock in the Territories has been wonderfully good I am glad to report, and there has been no outbreak of any contagious or infectious disease to chronicle.

## HORSES.

*Glanders* in some parts of the Territories still exists. There has been no serious outbreak in any one locality, and no cases have occurred in livery stables or in towns, but it is scattered about amongst the farmers and small ranchers. To show what damage one diseased animal can do, Dr. Hargrave reports having destroyed 21 horses suffering from glanders. In all but two of this number the infection was traced back to a horse brought from Regina some three years ago, which horse was worked at a sawmill in the Cypress Hills. This horse ran at large for a length of time, and nearly all these cases came in direct contact with him, and were within a radius of twelve miles from the sawmill.

The public at large are quite alive to the seriousness of this disease, and have in nearly every case given the inspectors every help in stamping it out. A pamphlet dealing with this disease was received from your department last year, and distributed as widely as possible throughout the Territories.

Glanders was found to exist lately to a rather dangerous extent in the Red Deer country. It was traced to a herd of horses imported from Montana last year, and Staff-Sergeant Sweetapple has been, and is still employed in stamping it out.



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The number of horses destroyed for the past twelve months is as follows:—

Eastern Assiniboia.....	39
Maple Creek.....	1
Medicine Hat.....	21
Lethbridge.....	0
Macleod.....	3
Calgary.....	11
Edmonton.....	17
Prince Albert.....	20
Total.....	112

During the spring round up, the greatest part of the range horses in the Cypress Hills were carefully examined, and not one was found affected with this disease.

*Influenza.*—Influenza has appeared in various parts of the Territories, and in its minor forms has caused little loss, but considerable inconvenience to stock owners. In the northern sections of the Territories principally, typhoid has caused quite heavy losses. This disease appears to be very fatal and even when the animal is given the best of treatment and apparently recovers, experience has shown that it is never fit for work again.

Dr. Hargrave states the disease is contagious beyond question.

Another form of influenza, called swamp fever by several of the inspectors, appears to have been very fatal. It is confined mostly to the wet country in the northern districts. There appears to be considerable variance of opinion as to the cause and nature of this disease, and it has been under investigation during the past season by your department.

*Mange.*—Mange has appeared amongst range horses in a few localities in the west, but to no great extent, and is well under control.

*Strangles.*—Strangles has, as usual, caused some loss amongst young stock.

#### CATTLE.

*Mange.*—Mange caused some trouble during the past winter in some sections of the Cypress Hills, and in the High River district. Macleod and Lethbridge district appear to have been comparatively free. The disease disappeared with the advent of green grass in the spring, but within the past few weeks, cases have been reported from various points. Amongst the cattle offered for shipment 121 head were rejected in Calgary district, 3 in Medicine Hat district, 1 in Macleod district, and 23 showing symptoms were allowed to be shipped from Medicine Hat to Calgary for immediate slaughter, and the car used in their carriage was immediately and thoroughly disinfected.

*Actinomycosis.*—Acting under instructions from your department, this disease has not been treated as a contagious one, and the only restriction now imposed is not to allow them to be shipped for export. Reports show this disease to be on the decrease, and it is the almost universal custom on the ranges when a diseased animal is found, to destroy it, and to feed it to the dogs. Nine were destroyed before the instructions referred to were received.

*Symptomatic anthrax* has not occurred to such an extent as in former years, owing, I have no doubt, to the increased use of vaccine.

*Tuberculosis.*—There have been very few cases reported.

#### SHEEP.

*Anthrax.*—One case was reported from Wood Mountain, but I doubt very much the diagnosis. Every precaution was taken to prevent the spread of the disease, and no further cases occurred.



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Quarantine was strictly enforced in the Swift Current district. Notices giving the limits of the quarantined ground were posted at the corners of each township and where every trail entered the infected area, and at public places within the district. The quarantine ground was burned over last fall, and what could not be burned then was finished last spring. A party of three men continually patrolled the quarantined area. The greater portion of the sheep belonging to the Canadian Land and Rancho Co., were ranged off the infected district, but some 60 or 70 head were ranged within the infected area. No cases occurred, and by orders from your department under date of October 10 instant, the quarantine was raised.

Some losses occurred in the spring in the western country from continued cold rains, otherwise there have been none except from unavoidable and natural causes.

*Scab.*—None has been reported except in a small band at Stirling, and they were promptly dealt with.

## SWINE.

Swine appear to have been unusually healthy, no disease whatever having been reported amongst them.

The number of stock imported and inspected was as follows:—

Cattle .....	30,581
Horses .....	16,341
Mules .....	394
Sheep .....	83,134
Hogs .....	764

The total amount of inspection fees collected amounted to \$6,322.73, which has been forwarded to your department.

In addition to this there is the sum of \$844.70, collected at Wood Mountain, yet to be forwarded.

The number of cattle inspected for export shipment was 46,233.

## GENERAL REMARKS.

Quite a large number of young cattle from Texas and Mexico were imported during the past season. They were very carefully examined and found to be clean.

Some few cattle have been driven from Western Assiniboia and Southern Alberta to the Great Northern in Montana and shipped through in bond. They were destined for the English market. Should any more shipments occur, a health certificate will accompany the cattle and Dr. Knowles, the American State Veterinarian, will be notified.

As will be seen by examining the inspectors' reports, their duties at the different ports of entry have largely increased. Next year, as far as at present can be judged, there will be still heavier work, and it may become necessary to station an inspector at Cardston or at some point near the boundary line south of there, as the imports last season were quite heavy, amounting to 8,458 cattle and 3,612 horses.

During the past year, the chief veterinary inspector has visited the Territories twice, and conferred with me regarding quarantine matters.

Attached to the different inspectors' reports will be found statements which show fully the amount of work done in each district.

Weekly and monthly reports from each inspector have been regularly sent to the chief veterinary inspector during the past year, and special reports in all instances when necessary.

I have the honour to be, sir, your obedient servant,

A. BOWEN PERRY,

*Commissioner, N.W.M.P.*

The Honourable

The Minister of Agriculture, Ottawa.



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MACLEOD, October 31, 1902.

SIR,—I have the honour to inclose herewith return of inspections made for the Department of Agriculture by the veterinary staff of 'D' division for the year ending October 31, 1902.

The animals owned and ranged in this district have been remarkably free from contagious or infectious diseases during the year, notwithstanding the fact that large numbers have been brought in from different parts of Canada and the United States.

Some few cases of mange were reported from different sections of the country during the winter, but so far as I could learn the owners of affected cattle gathered them and treated them at home, and by the time the shipping season opened the disease had practically disappeared.

Actinomycosis appears to be just about as prevalent as ever, and animals suffering from this disease are disposed of in the usual way, viz., by feeding to dogs that are kept for wolf hunting or are given to Indians. Very few animals suffering from actinomycosis are brought in for shipment, those shown on the returns as rejected were, with one or two exceptions, cut out of the bands before the beef cattle were cut for shipment.

This appeared to be an unfavourable year for the development of black leg, no cases having been brought to my notice since July, and those who applied for blacklegine had small losses.

Tuberculosis appears to be unknown among the range cattle of this country, at least I have never seen a case or heard of one.

The cattle shipped out this year have been an exceptionally good lot—better, I think, than those of former years. An abundance of feed and water, cool weather and an absence of insect pests, made it a particularly favourable year for the putting on of beef. The improvement in the breeding is also a factor in this connection, and is so marked that cattlemen do not now draw attention to any particular animal by the shape of its horns or the colour of its hide, but designate it as Polled Angus, Hereford, Shorthorn or Highlander, as the case may be.

I understand that the loss of sheep early in the summer was heavy, due to the heavy rains falling at that time. No disease, however, made its appearance among the flocks of this district.

Horses have also been particularly healthy, there being nothing of interest to note.

Business in horses has been good during the year, there being a good demand for saddlers, workers and drivers, and I suppose twice the number could have been disposed of had they been in the country.

I have the honour to be, sir,

Your obedient servant,

JNO. F. BURNETT,

*Veterinary Inspector.*

The Officer Commanding,  
North-west Mounted Police,  
Macleod.

MAPLE CREEK, October 31, 1902.

The Officer Commanding  
'A' Division, N.W.M.P.

SIR,—I have the honour to submit this the annual quarantine report of this district for year ended this date.

There have been very few cases of contagious disease of any kind in stock. With the exception of an outbreak of anthrax in the cattle of Mr. G. Ambrose on Maple creek, nothing of an alarming nature has existed; anything else being confined to individual cases or nearly so. In the above case I imposed a strict quarantine on stock



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and premises, embracing all buildings, corrals, &c., had a thorough course of cleansing and disinfection carried out with the result that the disease was effectually stamped out and quarantine raised after a period of three months by authorization of the Hon. the Minister of Agriculture. Mr. H. Fauquier's horses near Maple creek which were under quarantine at time of last annual report, after a period of three months to allow indications of glanders to develop, they having been exposed to infection, were thoroughly inspected, and no indications of glanders being apparent, quarantine was terminated. One case of glanders came under my notice during the year, that of a stallion owned by Mr. Chas. Reid of Swift Current. This animal showed unmistakable symptoms of the disease and was destroyed, and the regulation relating to such cases carefully carried out. Other cases of contagious disease comprised individual cases of actinomycosis, tuberculosis and mange.

Regarding mange, no complaints have been made during the past year, and from observation of the stock in different parts of the district and inquiries from ranchers, little trouble appears to have been experienced with this disease. Treatment by hand is the only means used in its cure and prevention and is in every way satisfactory, and ranchers claim to have no difficulty in handling in this manner all cases which turn up.

Shipping began at an unusually early date this year. Conditions were favourable for the maturing of beef, and although the number of beef cattle shipped to date is slightly less than last year at this date, the next two months will more than make up the difference, as there are yet a great many prime beef animals on the range. I might say that during the year I have not found it necessary to reject one animal as being unfit for shipment or human consumption.

Imports were greatly in excess of last year in both horses and cattle, which were all found free from contagious disease.

Quite a number of Mexican cattle, practically all two-year old heifers, have been brought into the district. These are to be crossed with purebred Hereford bulls, and being largely in the nature of an experiment, will be watched with interest, and if successful, will no doubt lead to large importations of that class of cattle. The class of horses imported during the year has generally not been all that could be desired to aid in the building up of this most important industry. By this I mean lack of breeding and quality, they being to a great extent of the cayuse type.

The imports of sheep were about the same in number and of a decidedly better class, younger and better bred.

Large numbers of dogies have been brought into the district and find a ready market at good prices.

The following animals were imported during the year:—

Horses . . . . .	2,870
Cattle . . . . .	2,993
Sheep . . . . .	8,760
Mules . . . . .	42

There were inspected during the year, 5,975 beef cattle for exportation from Canada and 1,318 for local markets.

The veterinary inspection fees collected during year amounted to \$1,211.05.

I have the honour to be, sir,

Your obedient servant,

D. CORISTINE, *V.S., S. Sgt.*

The Officer Commanding  
N.W.M. Police, Lethbridge, N.W.T.



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COUTTS, October 31, 1902.

SIR,—I have the honour to state that I have made out and forwarded my annual reports of veterinary work performed for the Department of Agriculture, for the twelve months ending October 31 inst.\*

I have the honour to be, sir,

Your obedient servant,

JOS. E. CARTER, V.S.

To the Officer Commanding  
N.W.M. Police, Calgary.

CALGARY, October 31, 1902.

SIR,—I have the honour to make the following report of the work done for the Department of Agriculture during the year ending October 31, 1902.

Eleven animals have been destroyed during the past year for glanders. This disease, I regret to say, appears to be on the increase.

S. S. Sweetapple is at present following up an outbreak of it in the Red Deer district, which he will doubtless stamp out.

Two cases of actinomycosis were destroyed at the owner's request, having reached the stage in which both animals were worthless.

Two steers, the property of P. Burns & Co., were also destroyed at their request, for tuberculosis. These animals were in a most dilapidated condition, and I recommended their destruction, and held a post mortem in both cases.

During the summer months mange in cattle seemed to have almost entirely disappeared, but now that the green grass has disappeared, it is again showing up on the range. Mange has existed and still exists in the High River district amongst the horses of Messrs. Eckford, and has done so in Mr. George Lane's, but I think I am safe in saying that in his case it is almost entirely stamped out.

From time to time deaths occur in the horses, ranging from Olds as far north as Red Deer. I am not in a position to state the pathology of the disease, but am under the impression it is a form of typhoid influenza. Some few cases of it have existed around Calgary, and from what practitioners have told me, it exhibits the symptoms of the above named disease.

Mr. R. Riddell, V.S., has been acting as veterinary inspector in this district when required, and I attach herewith his report for the year.

With the exception of mange in cattle and horses, the health of the stock in this district is everything that could be desired.

I have the honour to be, sir,

Your obedient servant,

ARTHUR HOBBS, V.S.

*Veterinary Inspector.*

To the Officer Commanding,  
N.W. M. Police, Calgary.

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\* Statements inclosed not printed.



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CALGARY, October 27, 1902.

SIR,—I have the honour to report that during the past three months I have inspected for shipment one thousand six hundred and thirteen (1,613) head of cattle.

I have found the cattle all in good healthy condition and free from any contagious or infectious disease.

I have the honour to be, sir,

Your obedient servant,

R. RIDDELL, V. S.

To the Officer Commanding  
N.W.M. Police, Calgary.

FORT SASKATCHEWAN, October 31, 1902.

SIR,—I have the honour to forward the following report of services performed for the Department of Agriculture for the year ending October 31, 1902.

I have frequently visited the different parts of this district, and have found that swamp fever has caused the death of a number of horses in almost every locality.

There is a marked increase in the number of cases of glanders and especially in the horses brought by settlers from Montana.

A mild epidemic of influenza occurred among horses during the early part of the summer.

Contagious abortion apparently exists in certain localities, as there is a great decrease in the number of calves born to what was expected. Besides this, cattle, sheep and hogs have been particularly free from disease of any kind.

A detailed statement of work done by me here has been forwarded to the department from time to time.

I have the honour to be, sir,

Your obedient servant,

C. H. H. SWEETAPPLE, V. S.,

*Vet. S. Sgt.*

To the Officer Commanding,  
N. W. M. Police, Fort Saskatchewan.

PRINCE ALBERT, October 31, 1902.

SIR,—I have the honour to forward the annual report of the work performed for the Department of Agriculture for the twelve months ending October 31, 1902, which is detailed on the accompanying form (not printed). I inspected no stock for shipment and collected no fees. About 5,000 head of cattle left this district for the southern part of the territory and about 2,000 fat cattle went to England.

The general health and condition of the stock in this district for the past year have been good.

I have the honour to be, sir,

Your obedient servant,

J. J. MOUNTFORD, V. S.,

*Vet. S. Sgt.*

The Officer Commanding,  
F Division, Prince Albert.



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NORTH PORTAL, November 3, 1902.

SIR,—I have the honour to inclose herewith quarantine return for North Portal for year ending October 31, 1902. (Tabulated statements inclosed not printed).

I have the honour, to be, sir,

Your obedient servant,

H. T. AYRE, S. Sgt.,

*In charge of detachment.*

The Officer Commanding,  
Regina District, N. W. M. Police.

WOOD MOUNTAIN, October 31, 1902.

SIR,—I have the honour to forward you the following report of veterinary work done for the Department of Agriculture since my arrival here in April last. I received orders on arrival at Willow Bunch to proceed to Mr. Halle's place, and examine twelve carcasses of cattle supposed to have died from anthrax, but as I found out that they had been dead and buried over a fortnight, I considered it inadvisable to exhume the carcasses for a post mortem examination. At the same time I received orders to examine a horse belonging to Mr. Peter Hourie of Regina, running with a bunch about 12 miles from the detachment, and supposed to be suffering from glanders. I proceeded to the place, examined the horse and found it free from disease.

On August 23, when I was at Willow Bunch, a sheep belonging to Mr. L. Dumas died, which on post mortem examination proved to have been affected with anthrax, I immediately had the carcass burnt, and up to the present there have been no further cases.

On September 28, I examined a bay mare and colt belonging to Mr. Longe, reported to be suffering from glanders, but found both free from disease. I might here state that influenza has been very prevalent through the district this summer, with the result that people report all catarrhal affections as glanders.

I make it a point when out to examine all stock in the vicinity where I stop, and am satisfied that there are no cases of glanders in this district.

I examined two stallions for Mr. W. Murray, which he was taking over to Saco, Montana, U.S.A.

I have the honour to be, sir,

Your obedient servant,

F. PERRY, V.S.,

*Constable.*

To the Officer Commanding  
Regina District.

REGINA, October 31, 1902.

SIR,—In compliance with your instructions, I have the honour to forward this, my quarantine report, for the year ending October 31, 1902.

And in addition to the detailed statement herewith submitted, it might be stated in general terms that a very considerable amount of work along the same lines, but outside the scope of that statement, has been performed. Obviously in the prosecution of duties of this kind, scattered over a wide area and occurring at points widely separated, a considerable amount of time and labour were involved, but, nevertheless, in every instance the localities in question were visited with the utmost promptitude, and such



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action taken at the time as has rendered unnecessary, with scarcely an exception, any subsequent interference.

In common with previous years and necessarily connected with the agricultural pursuits of the people, glanders among horses has been the chief source of trouble. The unusual influx of immigrants that has characterised the past season, not only from the adjacent states, but from the eastern provinces as well, implying in nearly every instance the introduction of outside horses in corresponding numbers, is no doubt accountable, to a large extent, for the prevalence of this disease during the past season. Instances have occurred in certain localities where, notwithstanding the vigilant eye of the inspector, the presence of the disease could only be accounted for on that theory.

In dealing with this disease, in a large majority of instances, the mallein test was resorted to as an aid to a correct diagnosis, but in no instance has an animal been destroyed merely as the result of a response to the use of that preparation. In a word while the utmost vigilance has been exercised in stamping out disease wherever it has been found to exist on the one hand, an equal degree of care has been exercised in guarding the interests of owners on the other, so that it can be safely stated that no animal has been destroyed for glanders that was not affected with that disease, and, agreeably with this course of procedure, in every instance where it has been found necessary to destroy an animal, post mortem examination, if at all practicable, preceded the act of burning the carcass.

With the exception of glanders no disease of a strictly contagious character affecting horses or other domesticated animals has come directly before my notice. During the summer and autumn months, in certain low-lying districts and in connection with the grading outfits on the new railway, swamp fever in horses for the first time made its appearance, and, as a result, considerable mortality among horses occurred. In these instances symptoms of an unusual character were presented thereby occasioning considerable alarm to the owners of the affected animals, but an investigation invariably established the non-contagious nature of the malady.

Altogether the general health of stock has been good. Even in the case of glanders no serious outbreak has occurred, the cases reported having been confined to agricultural horses, and usually limited to the ownership of a single rancher; black leg, too, usually more or less prevalent in the ranching districts does not appear to have occasioned much trouble, while so far as anthrax is concerned no instance of its presence has been brought to my notice.

I have the honour to be, sir,

Your obedient servant.

W. MITCHELL, V.S.,

*Vety. Staff Sergeant*

The Officer Commanding  
Regina District, Regina.

MEDICINE HAT, October 31, 1902.

SIR,—I have the honour to submit this my report for the twelve months ending October 31, 1902.

All classes of live stock have been particularly healthy in this district.

7,644 head of cattle were inspected and passed for shipment, the major portion for the English market.

A statement of these inspections is appended herewith,\* as will be seen from this statement, six (6) head were rejected, twenty-three (23) head were permitted to be shipped for immediate slaughter, these had been treated for mange, but still looked suspicious. The shipper was notified to have the car disinfected immediately on unloading. The officer commanding, Calgary, was asked to see that this was carried into effect.

Beef cattle were in the best of condition, perhaps never better.

Appended hereto you will find a statement\* of stock imported from the United States during the last 12 months, showing that 4,433 head have been inspected, this

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\* Statements inclosed not printed.



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number does not include sucking colts or calves. Of this number 193 were entered as part of settlers' effects. Upon the balance, inspection fees to the amount of \$990.65 has been collected.

Vaccine sales to the amount of \$326.40, have been made during the year. Black-leg vaccine is being used more than heretofore, as a result little or no loss from symptomatic anthrax has been reported this fall.

*Glanders.*—During the year twenty-one (21) head of horses were shot, about half the number of last year. At the time of this report eleven (11) others are in quarantine having responded to the mallein test. Of the 21 head shot, 14 presented clinical symptoms of glanders, and one of farcy; the balance responded to the mallein test. Since March, none have been destroyed unless presenting clinical symptoms, and since August temperature charts of all tests made have been forwarded for your consideration. With two exceptions, these cases can be traced to a horse brought from Regina about 3 years ago and worked at a local saw mill in the Cypress Hills district. This horse ran at large for a length of time and nearly all these cases came in direct contact with this horse, they all being within a radius of twelve (12) miles from the mill.

On May 9, instructions were received to inspect all horses as rounded up with a view to ascertain to what extent glanders existed, not one case was found.

In addition to horse round up, all stock inspected by me under the Animal Contagious Diseases Act, are included in the list.

*Influenza.*—Influenza appeared in different forms in the district. In one part it appeared in that form commonly called pink-eye and, although no loss to speak of, still it caused considerable inconvenience to the ranchers, as it occurred during the busy season.

In that district lying between Calgary and Edmonton it took the abdominal form namely, typhoid influenza. A large number die each year in this part, especially among the range horses and those away from points where professional aid can be had. That it is contagious is beyond question. The period of incubation would appear to be of various lengths. Some would be quite sick one day that were quite healthy the day before. Some cases run a very rapid course and some remain sick from 3 to 5 weeks. Some never recover completely, i.e. apparently all right, but will not stand work. One case I saw while at Bowden was affected with a weakness of the heart, would not stand more than half a day's work. As a rule they stand motionless, head drooped, eyes swollen and running, staggering gate when moved, especially a weakness of the hind quarters. In later stages an odematous enlargement on the under surface of chest and abdomen. Temperature 105 and 106, 106.5 in one case I saw. Heart rapid and strong, pulse weak, almost complete loss of appetite. I pointed out to the ranchers the necessity of complete isolation and careful nursing. In some cases expectant treatment was all that was necessary, with alcohol or digitalis in later stages.

*Actinomycosis* appears to be gradually decreasing, only three (3) head were seen at the stockyards and only a few have been reported on the range.

*Mange* caused some trouble during the past winter in one or two localities, one rancher having to treat about 50 per cent of his band. In the Walsh district a very small per cent were affected, but the major portion of the district was free from it. No cases have been reported since April, until within the last two weeks when a few head have been reported. Three head were rejected at the shipping points, and 23 others showed evidence of mange recently cured.

*Tuberculosis.*—Only one animal was treated with tuberculin, giving negative results.

*Symptomatic Anthrax* occurred during last fall and up to the latter end of January, but since then only two instances where loss has been reported. All outbreaks stopped upon use of vaccine. The increased use of vaccine this year no doubt accounts for its non-appearance.



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*Opthalmia* occurred to quite an extent this fall, but the majority of cases made a complete recovery. Among sheep no loss, other than from spear grass and poisonous plants has occurred.

On June 17, 11 head of sheep died at Gull lake; owing to the interval between time of death and my visit did not make an examination of them, but from the history and *post-mortem* appearances described by the shepherd, I feel positive that deaths were due to the poisonous plant, known as Death Camus, which grew there in abundance.

No loss among the sheep at Swift Current from anthrax, although some 60 or 70 head were allowed to pasture on the infected lands all summer. The balance of the companies sheep have been kept away from the infected lands.

Permission was applied for and granted to the Canadian Land and Ranch Co., at Swift Current to ship their wool stored at that point.

Respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

J. C. HARGRAVE,

*Inspector*

The Honourable  
The Minister of Agriculture,  
Ottawa.

## No. 41.

## REPORT OF VETERINARY INSPECTOR AT NELSON, B.C.

(J. A. ARMSTRONG, V.S.)

NELSON, B.C., October 31, 1902.

SIR,—I have the honour to submit to you this my report for the year ending October 31, 1902.

I am glad to report that this district has been comparatively free from disease during the past year, there being only one outbreak of glanders in January, 1901, at Slocan City, Wardon Bros. losing five horses and Mr. R. Allan three horses and one colt.

The following is a statement of the stock imported into this district during the year :—

Horses.....	53
Mules.....	13
Cattle.....	171
Swine.....	98
Sheep.....	2,463

I have the honour to be, sir,

Your obedient servant,

J. A. ARMSTRONG,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



No. 42.

REPORT OF VETERINARY INSPECTOR AT GRAND FORKS, B.C.

(S. C. RICHARDS, D.V.S.)

GRAND FORKS, B.C., October 31, 1902.

SIR,—I have the honour to submit my annual report of stock entered for inspection into the Kettle River district during this year ending Oct. 31, 1902 :—

Horses.....	442
Cattle.....	7
Sheep .....	2,246
Hogs.....	48

It is my pleasure to state that the condition of the stock in this district is splendid, and that there has not been a single outbreak of a contagious disease in this district during the last year.

I have the honour to be, sir,

Your obedient servant,

S. C. RICHARDS,  
*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 43.

REPORT OF VETERINARY INSPECTOR AT VANCOUVER, B.C.

(J. B. HART, D.V.S.).

VANCOUVER, B.C., October 31, 1902.

SIR,—I have the honour to report a gratifying scarcity of contagious diseases of animals in this district.

There is a certain amount of tuberculosis and actinomycosis and, along the Lower Fraser valley, a disease which, owing to the finding of red hemoglobin globules in the tissue voided, the circumscribed area covered and its recurrence, I judge to be caused by a malarial agent, probably a microbe, though as yet I have not been able to isolate such.

There have been but few cases of symptomatic anthrax in cattle, and only one outbreak of contagious pneumonia (lung fever) in horses. The latter was easily controlled by isolation and disinfection.

I have the honour to be, sir,

Your obedient servant,

J. B. HART,  
*Inspeitor.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



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No. 44.

REPORT OF VETERINARY INSPECTOR OF ANIMALS ARRIVING AND  
DEPARTING FROM PORT OF VANCOUVER BY SEA.

(J. W. BLAND, V.S.)

VANCOUVER, B.C., October 31, 1902.

SIR,—I have the honour to report that the general health of horses, cattle, sheep and swine in the province of British Columbia during the past year has been good with few exceptions.

On May 1 I inspected 61 head of American Merino sheep for Pliny B. Morton and R. D. Clark, of Addison, Vermont, U.S.A., valued at \$53,000—a magnificent flock, indeed. Mr. Morton had twelve new wooden crates built here for their ocean voyage to Sydney, New South Wales, Mr. Morton and myself removing them from palace horse car No. 58958, Canadian Pacific Railway, to new wooden crates with greatest possible care.

On May 5, for A. D. Patterson, Esq., I inspected and quarantined 6 purebred cattle, valued at \$1,900, giving tuberculin test without reaction. Quarantine raised; tuberculin chart, in A. D. Patterson's name, sent to your office.

During the 12 months ended October 31, 1902, I inspected 238 horses, 3,540 cattle, 6,534 sheep and 1,290 swine in accordance with the regulations. Of these 10 horses, 54 cattle, 1 sheep and 1 pig were the property of settlers from the State of Washington, U.S.A.

In conclusion, I have again to thank the officers of His Majesty's Customs for assistance in carrying out the regulations.

I have the honour to be, sir,

Your obedient servant,

J. W. BLAND,

*Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

No. 45.

## REPORT OF VETERINARY INSPECTOR, VICTORIA, B.C.

(C. R. RICHARDS, M.D.C., V.S.)

VICTORIA, B.C., October 31, 1902.

SIR,—I have the honour to submit the following as my report of inspection made at this port for the year ending October 31, 1902 :—

There was a total importation of 232 horses, 4 mules, 4 cattle, 355 sheep and 1 swine, and the total exports consisted of 18 horses and 1 sheep.



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The imported horses and mules were mostly from Eastern Washington, Oregon and Idaho, a few having come from California, they consisted principally of general purpose and light drivers and some were racing stock. Sixty of the horses so imported belonged to the dog and pony show of Gentry Bros., which is a travelling show, and entered British Columbia at this port having come from the State of Washington. The cattle were imported from Washington and Oregon and in consequence of the importers having failed to comply with the regulations for the importation of cattle they were placed in quarantine and subjected to the tuberculin test; all proved to be in a healthy condition and were released. The sheep were imported for breeding purposes and were mostly entered at Sidney a sub-port of Victoria, the hog was imported from Texas.

The exports consisted mostly of racers the majority of which had been imported from Washington for the purpose of taking part in the annual races in connection with the exhibition held at Victoria.

I have the honour to be, sir,

Your obedient servant,

C. R. RICHARDS,

*Inspector.*

The Honourable

The Minister of Agriculture,  
Ottawa.

No. 46.

## REPORT OF VETERINARY INSPECTOR AT CRANBROOK, B.C.

(W. S. BELL, V.S.)

CRANBROOK, B.C., October 31, 1902.

SIR,—I have the honour to submit my annual report of the health of animals in the district of South East Kootenay.

I am pleased to report that the general health of animals has been good, with the exception of an outbreak of influenza amongst horses during the months of November, December and January. Quite a number died which was mostly due to their not receiving proper care. A number developed a chronic nasal gleet.

The following is a statement of animals imported from the United States and inspected by me during the twelve months ended October 31, 1902 :—

Horses.....	363
Mules.....	28
Cattle.....	41

I have the honour to be, sir,

Your obedient servant,

W. S. BELL,

*Inspector.*

The Honourable

The Minister of Agriculture,  
Ottawa.



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No. 47.

## REPORT ON LIVE STOCK CARS AND YARDS.

*East of Winnipeg.*

(MICHAEL AUGER, INSPECTOR.)

OTTAWA, October, 31, 1902.

SIR,—I have the honour to submit to you this my annual report, covering the period from November 1, 1901, to October 31, 1902.

In compliance with your request, in March last I visited Calgary and several places in British Columbia and the Territories. It being rather early in the year, the shipping of cattle had barely commenced and I decided to return west in June or July. I then found that the cause of complaint about cars coming uncleaned from the United States, made by the veterinary officers of the government and the head officials of the Canadian railroads, had been removed and that cattle cars were being cleaned as the law requires.

On account of the increasing cattle trade in the West, I think the appointment of Mr. Chas. W. Peterson, of Regina, as Inspector of live stock cars and yards west of Winnipeg, is a move in the right direction.

I spent the balance of my time in Ontario and Quebec, and found that the different railroad companies were willing to comply with the regulations as soon as any neglect of their employees was reported to them.

The cattle-yards are being improved slowly but surely. During the year I have travelled over twenty-five thousand miles, having thus had a good opportunity of seeing the cattle cars and yards.

I have the honour to be, sir,

Your obedient servant,

M. AUGER,

*Inspector of Live Stock Cars and Yards.*

The Honourable  
The Minister of Agriculture,  
Ottawa.



No. 48.

## REPORT ON LIVE STOCK CARS AND YARDS.

*West of Winnipeg.*

(CHAS. W. PETERSON, INSPECTOR.)

REGINA, N.W.T., October 31, 1902.

SIR,—In accordance with your directions, I have the honour to submit herewith for your information, a brief report upon my inspection work from the date of my appointment, June 1 last. Up to a few years ago, complaints as to uncleaned stock cars and dirty or inadequate shipping yards were not very numerous, through that portion of Canada lying west of Winnipeg, but the rapid expansion of the cattle industry in the Territories, which has increased from an export trade of twenty thousand head in 1898, to about seventy thousand head during the present calendar year, coupled with a corresponding growth in grain production and other branches of agriculture, has taxed the resources of the railways severely, and made the situation particularly acute, and the abnormally wet seasons which have prevailed during recent years, having also had a very unfavourable effect upon the conditions, under foot, of stock-yards throughout the West. It is only fair to state, however, that any neglect as to the cleaning and disinfection of cars and stock-yards is almost invariably due to the failure on the part of employees to carry out their instructions, and not to any unwillingness of the railway company to comply with the law and to furnish proper accommodation for the loading and handling of live stock in transit. While travelling about the State of Montana recently, I took the opportunity of looking carefully into the yard and car equipment of American lines entering that State and found that the stock cars placed at the disposal of shippers were superior to those in use on Canadian lines, but the railway stock yard accommodation of Montana would have been equally as defective as in western Canada, had the seasons there been as humid as they have been here during late years.

My office work since my appointment has been fairly heavy, as I have made it my business to bring to the attention of the chief officials of the railways all complaints that have come to my notice from reliable sources, and such are of very frequent occurrence. I have not found it necessary to adopt any coercive measures during the year owing to the fact that cases of complaint have generally been attended to as promptly as circumstances would permit of, in fact, the railway managements have been rather pleased than otherwise to receive notification of defects in their facilities for handling live stock and of negligence of employees.

There can be no doubt that vast improvements are required in stock-yards throughout Manitoba, the Territories and British Columbia. Stock-yard facilities have by no means kept pace with the rapid expansion of the live stock traffic, both incoming and outgoing, and it is to be hoped that the earnest representations that have been addressed to the railway authorities on the subject, and which are now under consideration, will have the desired effect. Yards at all important points require extension badly, and the water supply in a great many cases is most inconvenient and deficient. It is most important that frequent inspections should be made of yards at feeding and resting points, as much depends upon the condition these yards are in. That a depreciation of a couple of dollars per head may easily take place in dogie cattle unloaded and kept in wet, uncomfortable yards when in an exhausted condition, will readily be admitted by all experienced shippers. In fact, the statement is freely made that enough cattle perished during the early spring through the defective condition of the Calgary stock-yards to more than pay for their reconstruction on a proper basis.



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The following statement shows the railway stock-yard facilities available in Manitoba and the Territories up to date.

	Number of Yards.	Total capacity in carloads.	Average capacity in carloads.
Manitoba.....	66	265	4.01
North-west Territories.....	64	668	10.43
Total.....	130	933	7.17

Since my appointment I have inspected all yards on the main line within the territories west of Regina as well as those along the Prince Albert line, also the principal yards on the Crow's Nest line and the Winnipeg stock-yards. Some of these have been reinspected at intervals.

A considerable number of cases where uncleaned cars have been furnished came to my attention during the year. Complaints were lodged in every instance and the offending employees reprimanded. Generally speaking, there can be no doubt that the type of stock car in use on Canadian lines in the west leaves much to be desired, and it would be a boon to breeders and shippers if the Street's stable car or some other similar style of car were generally introduced. It is probably a little premature to hope for such a step on the part of railway companies, but undoubtedly the value of cattle is seriously depreciated in transit owing to the present defective car service.

I have the honour to be, sir,

Your obedient servant,

CHAS. W. PETERSON,

*Inspector.*

No. 49.

## REPORT OF VETERINARY QUARANTINE OFFICER FOR CANADA IN GREAT BRITAIN.

(A. G. HOPKINS, B. Agr., M.D.V.)

OTTAWA, November 15, 1902.

SIR,—Herewith I beg to lay before you a report of the work performed by me as veterinary quarantine officer for Canada in Great Britain during the twelve months ended October 31, 1902.

Under the instructions of the chief veterinary inspector, I proceeded to Great Britain the beginning of May, and on arrival there May 15 at once began testing.

The question of the importation of Canadian horses, and the inspection of those horses having arisen, I was authorized to look into the matter with Mr. Wm. Hunting, F.R.C.V.S., London, Eng., which I did and have already reported on.



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My experience with the testing was similar to that described by Dr. J. G. Rutherford, my predecessor in the work, by whose experience I was materially aided in meeting the peculiar conditions encountered in the pursuance of tuberculin testing in Great Britain.

The work kept up steadily during the summer except for a short lull in September, during which time I was engaged in investigating the condition on arrival at the lairages (Yorkhill, Birkenhead and Deptford) of Canadian bullocks, regarding which I have reported elsewhere. The number of cattle tested by me was 571 head, all Shorthorns, except for a few Galloways and Aberdeen Angus. Owing to the great demand for Shorthorns and to the severe culling out of some herds, this and previous seasons, a number of inferior animals have been shipped across the Atlantic.

Fortunately for me the buying was more evenly timed and regular than last year, consequently I was enabled, except in two instances, to dispense with any professional assistance.

The percentage of reactions was 23, this season comparatively few cows were tested, buyers profiting by former experience, and thus bought only two years olds and under to be submitted to the test. As far as I can gather from the tests made, the percentage of cattle affected increases with age, more yearlings are affected than calves and more two year olds than yearlings. The poorly lighted ill-ventilated byres undoubtedly assist in the spread of the disease. My observations lead me to believe that in byres as described where diseased cattle are housed the chances of the young stock escaping infection are very small, and that little improvement can be looked for in the results from the testing of British herds until owners attend to the lighting and ventilation of their byres, the testing of their herds and the segregation of the reactors. As indicated by the present Chief Veterinary Inspector in last year's report, the eradication of this disease (bovine tuberculosis) is quite possible to effect at a comparatively small loss of time and expenditure.

As the American markets are the great stimuli to British pure-bred cattle values, it behoves the agriculturist of the British Isles to grapple with the question at once. A marked feature of the exportations was the great preponderance of females over males, and in nearly every case were they selected from certain fashionable families.

From the observations made I should think the average price paid per head to the British breeders to be between forty five to sixty pounds (\$225—300 dollars approximately) and as the greater number of the cattle shipped were two years old or under, the Old Country breeders have obtained good prices for their bovine stock. I had my headquarters at the Canadian Government offices, Glasgow, where I received many courtesies and much assistance from the agent, Mr. H. N. Murray. As the season for shipping to the Lévis quarantine has closed, I have returned to Canada according to instructions.

I have the honour to be,

Your obedient servant.

A. G. HOPKINS.

The Honourable  
The Minister of Agriculture,  
Ottawa.



SESSIONAL PAPER No. 15

No. 50.

## REPORT ON 'SWAMP FEVER' IN HORSES.

(F. TORRANCE, D.V.S.)

WINNIPEG, October 31, 1902.

SIR,—Acting upon the instructions contained in a letter from Dr. Rutherford, dated April 15 last, I have been engaged, with the assistance of Dr. Bell, in the investigation of 'swamp fever' of horses, and have the honour to submit the following report on the work done :—

*History of the disease*—There are no data for ascertaining when the disease first made its appearance in the province of Manitoba. The old settlers that I have interviewed can give no definite information on the subject. Veterinarians who came to Winnipeg in 1881 and '82 soon had their attention called to the disease, so that we may safely say that it has been known for more than twenty years. With the advent of new settlers came the importation of large numbers of eastern horses, and the gradual extension of the territory affected. At first this seems to have been confined to the country bordering the Red river, then that lying along the Assiniboine up to and including the Portage plains, and gradually extending its scope until at the present time it is recognized over a large area of Manitoba and in some parts of the Territories. In order to ascertain to what extent the disease was known, the following circular letter was addressed to every known veterinarian in Manitoba and the North-west Territories :—

WINNIPEG, May 22, 1902.

DEAR SIR,—In conjunction with Dr. Bell, the provincial bacteriologist, I am engaged in the investigation of 'swamp fever' in horses, with the object of discovering the cause of the disease, and a reliable method of prevention and cure. We wish to get information on the subject from different parts of the country, and I am, therefore, addressing this letter to you in the hope that you will kindly write me full particulars of the disease.

I may add, for your information, in case the disease is unknown in your locality, that 'swamp fever' is characterized by weakness, especially in the hind quarters, gradual loss of flesh while the appetite continues good, or even ravenous, paleness of the mucous membranes (anemia); variable temperature, debility and generally death. The points on which information is desired are :—

1. Is the disease prevalent in your locality, and to what extent?
2. How long has the disease been known there?
3. What are the symptoms usually observed?
4. What lesions are found on p. m. examination?
5. What is the usual duration and termination of the disease as you have seen it?
6. Have you discovered any reliable remedy or special mode of treatment? If so, what?

Your letter will be treated as confidential and not published without your permission. I inclose stamped envelope for your reply, for which, allow me to thank you in advance.

Yours, sincerely,

F. TORRANCE.



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Forty replies were received, seventeen of which stated that the disease was prevalent in the district of the writer, sixteen unknown or rare, seven slightly prevalent. Analysing these reports it is found that the districts affected are:—

First, the Red river valley, in its larger sense, which includes the area formerly occupied by the geological Lake Agassiz, including:

1st. The country up to the Pembina and Riding mountains, the Portage plains and Dauphin country.

2nd. The western part of Manitoba, the Binscarth, Russell and Yorkton districts.

3rd. The country north and south of Edmonton.

The south-western part of Manitoba, Assiniboia and Alberta, with the exception of the Edmonton district, appear to be free from the disease.

In the affected districts the loss from the disease is very serious, especially in wet seasons, and causes more deaths than all other diseases put together. To farmers the loss is very heavy, for when the disease makes its appearance on a farm, it is apt to recur from year to year, carrying off one horse after another.

For instance, Mr. Stewart of Westbourne is reported by Dr. Hilton, to have lost during two years, sixteen horses out of eighteen. Mr. Walter Burns & Son of Blythfield, during seven years farming, lost seventeen horses and forty colts, mostly from 'swamp fever,' and any number of similar cases could be cited. Railway contractors are often heavy losers from the disease. One of them who has had many large contracts in Manitoba and North-west Territories, told me that his loss in horse flesh, from this disease alone was over \$10,000. Veterinarians, who have had experience with it, are unanimous in saying, that it is the most serious equine malady they are called upon to treat, and consider the losses occasioned by glanders, trifling in comparison with it.

The Veterinary Association of Manitoba, has frequently discussed the disease and at the annual meeting of 1900, petitioned the local government to make a grant of money for the purpose of investigating its pathology and if possible discovering some means of prevention and cure. The Minister of Agriculture recognized the importance of the matter and made a grant of two hundred dollars, subsequently increased to two hundred and sixty, to the writer and Dr. Bell. With this money we continued the investigation previously begun by us, and made considerable progress, which was arrested by coming to the end of our grant. In 1901 the association petitioned for a renewal of the grant, but the local government failed to respond, and in 1902 the association addressed the following petition to the Dominion Minister of Agriculture:—

Whereas the disease of horses, commonly known as 'swamp fever' has been and is causing serious losses to the farmers and ranchmen of Manitoba and the Territories, losses besides which glanders is comparatively a trifling matter, and

Whereas the investigation hitherto carried on under the auspices of this association, assisted to a small extent by the Provincial Government have been hampered for lack of funds, and the pathology of the disease is still unknown, and a certain remedy for it still undiscovered.

Resolved, that this association do hereby memorialize the Department of Agriculture of the Dominion Government to make a sufficient grant for the purpose of investigating the disease.'

This request was graciously acceded to. A sum of money was placed in my hands, and with the valuable assistance of Dr. Bell, the work of investigating the disease has been going on for the past five months.

*Nature of disease, symptoms and course.*—The disease is essentially a fever of a remittent type. It is characterized by a progressive anaemia, gradual emaciation, while the appetite remains good, oedema, weakness and loss of power in the hind legs. The earliest symptom noted is weakness. The horse tires out easily, seems to have no life and is unable to do his usual work. If examined carefully at this stage, it is difficult to decide what is the matter with him, as the pulse may be normal and the temperature elevated 1 or 2 degrees only. Following closely the weakness, there is noticed some uncertainty in the movements of the hind legs, the horse appears weak in the loins, the toe is sometimes dragged along the ground, and in turning the horse sways the hind



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quarters and crosses the legs. He continues to eat well, and sometimes ravenously, but grows thinner all the time. His pulse is now increasing in frequency and runs from 50 to 60 or even 70 and a peculiar thrill is felt in it, as if the blood vessel, were only partly filled. The temperature becomes elevated to 103 degrees or higher, and varies considerably, remaining high for a few days and then falling almost to normal for an irregular time and again rising, but towards the end remains persistently high, an unusual amount of rumbling in the bowels is heard. The horse is now too ill to work, and it is usually at this stage that the first attempt is made to do something for him. He is laid off work and submitted to treatment of various kinds. He may improve for a time, but as a rule the improvement is only temporary, he takes the downward track again, gets thinner and thinner, his mucous membranes are pallid with a profound anæmia, his eye is sunken and bright with a glassy stare, œdema of the legs and under surface of body is noticed. His pulse becomes more rapid and weak. Venous regurgitation is seen in the jugulars. The heart sometimes labours so that its beating can be heard at a little distance. The skin is often dirty and feels greasy. The horse passes unnatural quantities of water. Finally death comes suddenly either from syncope or exhaustion.

Such is the usual course of the disease, the duration extending over two or three months. Sometimes, however, we meet with more acute cases in which all the symptoms are noted and present in an aggravated form from the first, and the horse dies in two or three weeks. And occasionally we meet with cases that respond to treatment and recover.

To deal more minutely with the symptoms I will take them one by one.

*The Pulse.*—The peculiar thrill already referred to is felt just as the pulse wave has passed and the vessel is subsiding. Once the observer has felt it he rarely fails to detect it even in early cases. Another feature of the pulse is its want of proportion to the temperature. In most diseases when the temperature is high we also find the pulse rapid, but in 'swamp fever' it is not uncommon at the outset to have a high temperature and a comparatively slow pulse, for instance a temperature of 105 degrees and a pulse of 50 degrees.

*Anaemia.*—The pallor of the mucous membranes, so well marked in the later stages of the disease, is not so noticeable at first, when the gums may only be a little less rosy than they should be. In fact a blood count may show a decrease of two or three million corpuscles before the appearance of the mucous membranes is appreciably altered. With a decrease of from three to four millions the pallor is very noticeable, and when the corpuscles are reduced to two and a-half or three millions the membranes appear almost completely blanched.

*The Temperature.*—In the early stages the temperature is very variable, high for a few days, then falling almost to normal for several days, then rising again; but towards the later stages of fatal cases remaining persistently high. After following closely very many cases I am unable to assign any definite period to the exacerbations of the fever. They vary in different cases. But I would like to point out that one should be careful in diagnosing a case when there is slight elevation of temperature, as it may be in the quiescent stage and in two or three days show a marked rise.

*The Appetite.*—One of the most curious features of the disease is the way a horse will eat while suffering from this fever and getting thinner every day. If allowed the horse will eat hay almost continually, besides consuming as much oats or bran as a working horse. The ravenous appetite is characteristic of the disease.

*Oedema* of the legs is not generally seen until the later stages are reached, and in well-bred animals may not be seen at all. In many cases we also have oedema of the under surface of the body.

Petechiæ on mucous membranes we have observed in a very few cases, and only on the surface of the membrana nictitans. In one case that I was able to follow to its termination the petechiæ remained throughout its whole course.



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*Polyuria*.—A marked increase in the quantity of urine secreted is often noted during the course of the disease and may be taken as an unfavourable sign, indicating a destructive katabolism.

Such are the clinical features of the disease as seen in ordinary practice as well as in the experimental cases kept under observation, and I will now give a more detailed account of our observations and experiments.

Two cases of 'swamp fever' were obtained through Dr. Hilton of Portage la Prairie, and shipped to Winnipeg by train, where they were placed in a small stable convenient to the laboratory. One of these cases represented the chronic type of the disease and had been sick since the previous fall. The other was a more recent type and had only been affected about one month. Both were greatly emaciated and so weak that it took over an hour to get them from the stock-yard to the stable. They were numbered I and II and clinical investigations begun at once. Records of the pulse and temperature were made twice daily, the blood frequently examined for hæmatozoa, the corpuscles counted and cultures made. While this work was going on it was desirable that experiments should be made to find out whether the disease is transferable from horse to horse.

With this object a healthy horse, No. III, was purchased, placed in the stable with the diseased ones, and after a short period of observation, to ascertain whether his health was normal, he was injected with blood from one of the diseased horses. His temperature and pulse were recorded twice daily and blood counts made. A rise of temperature twelve days after the injection made it probable that the horse had been infected; however we noticed two subsequent rises of temperature at intervals of ten to twelve days without any clinical symptoms of the disease, and the horse continued in his usual state of health.

Thinking that perhaps the failure to infect this horse might be due to natural immunity upon his part, he was a native broncho, we looked about for a healthy horse of eastern breeding. After some time we bought a mare, No. IV, suffering from 'broken wind' but otherwise healthy. She was placed in the stable and used for testing the communicability of the disease.

Experiments were now made upon the two sick horses to discover if possible some remedy for the disease. The clinical fact of a good appetite existing concurrently with progressive anaemia and emaciation, rendered it probable that intestinal digestion was faulty, toxins were forming in the bowels, and chronic auto-intoxication taking place. The suitable remedy for this condition appeared to be some drug of the antiseptic class, and it was desirable that it should be free enough from taste and odour to be taken by the horse in its feed. After many experiments with various drugs, salol was adopted as most nearly filling the requirements. This is a combination of salicylic and carbolic acids, in appearance not unlike granulated sugar, has very little taste or smell and is readily taken in the food. It was given to a mare and a horse beginning with one drachm three times a day, increasing the dose to two drachms.

The mare tolerated the drug very well, and a gradual improvement was seen, the blood corpuscles increased in number and she finally recovered. The horse had hardly begun to improve when an unfortunate accident terminated his existence. He was one day tied to the fence near the stable to get the benefit of the sun and what grass was available, but lay down close to the fence and somehow got caught partly underneath it. No one observed his predicament, and it was sometime before he was finally released, completely exhausted by the struggle to get free. He walked back to the stable and two days after died from acute peritonitis, resulting directly from the injury he had received under the fence.

Possibly if this accident had not intervened, he might have recovered from the fever. Some other cases of fever were obtained and kept under observation until they died, when careful autopsies were made and cultures obtained from the blood, heart and other organs, details of which are given elsewhere.



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## THE DISEASE IN MINNESOTA.

In September I had the opportunity of seeing the disease existing in the neighbouring State of Minnesota, and which is considered probably identical with our 'swamp fever.' In company with Dr. Westbrook, director of the State Board of Health, and Dr. Brinhall, veterinarian to the board, I saw several cases near Fertile and Beltrami and assisted at the autopsy of a horse killed for the purpose. The farms upon which these cases were found were flat, with little or no drainage, the soil a heavy clay, the water from flowing wells. In most cases these wells were surrounded by an area of water-soaked clay, through which horses had to wade to get to the drinking trough. The buildings were wooden, sometimes deficient in air space per head, and generally with no floor but the natural earth tramped hard. The cases of the disease I examined appeared to resemble our 'swamp fever' in many respects while differing in some others. The duration of the disease, its fatal termination, many of the usual symptoms, such as loss of flesh while the appetite remains unimpaired, loss of muscular control in the hind legs shown by wabbling gait, are all usually seen in 'swamp fever,' but the abscess formation commonly seen in the Minnesota disease is not seen except rarely in 'swamp fever,' and in the cases I saw there was not the profound anaemia so characteristic of 'swamp fever.' The post mortem lesions too were slightly different.

In addition to the abscesses referred to, there were numerous areas of gelatinous tissue with haemorrhagic spots, and the muscular tissue redder than in 'swamp fever.' The other conditions, enlargement of spleen, &c., were similar. On the whole I considered it doubtful if the disease was identical with ours and invited Drs. W. and B. to come to Manitoba and see some of our cases. This they subsequently did, but unfortunately the case which I had secured for their inspection died before they reached it, and another case hurriedly obtained in place of the former was not by any means typical, and the post mortem results were disappointing, most of the cultures remaining sterile. While these investigations have failed to positively identify the Manitoba with the Minnesota disease, enough information has been gathered to convince me that if not actually caused by the same germ, the diseases are closely allied. The Minnesota authorities are co-operating with us in the exchange of cultures, records of cases, &c., which should greatly facilitate the work.

The close resemblance of 'swamp fever' to an East Indian disease called surra, which is caused by a parasite in the blood (*Trypanosoma Evansi*), naturally turned our earliest investigations in that direction.

We therefore examined the blood of every case, not only those we had constantly under observation, but also whenever an opportunity occurred in any everyday practice. The following method was adopted:—

(a.) The corpuscles are counted, using the Thoma-Zeiss haemocytometer, and taking the blood as it issued from a large hypodermic needle inserted in the jugular vein. After trying other methods this was adopted as giving the most trustworthy results.

(b.) The hæmoglobin is estimated, using Oliver's tintometer, and latterly Tallquist's hæmoglobin scale as well. The latter is very convenient in use, but we doubt if it is as accurate as the former,

(c.) Fresh slides are examined unstained for parasites, ova, &c.

(d.) A thin layer of blood is dried on a cover glass (blood smears) stained, mounted and examined for micro-organisms.

(e.) Some fresh blood is drawn from the vein, with the usual precautions, into a sterile flask containing peptone solution. This is afterwards placed in the incubator and kept at body temperature for a few days and examined at intervals for any evidence of bacterial growth. Should such occur, fresh cultures are made in various media, and the organism studied in the usual bacteriological methods.

## RESULTS.

(a.) 'Swamp fever' is not surra. If it were, the organism that causes surra should be present in all patients at some stage of the disease. We have never found the surra



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parasite, which is a large organism, as long as three diameters of a red blood corpuscle, and not difficult to detect in fresh specimens of blood examined with a comparatively low power. A sufficient number of observations have been made upon numerous cases to warrant the opinion that 'swamp fever' and surra, while clinically alike, are different and distinct diseases.

(b.) An organism discovered.—Among the various bacteria which we have found in different cases, there is one which stands out from the rest in several particulars. It has been found oftener than any other microbe in our 'swamp fever' cases, and has characteristics which differentiate it from other known bacteria, and toxic properties when injected into animals. It is a large bacillus, non-motile, spore-forming, positive to Gram, and has been found in such a number of cases that it appears to have some connection with the disease. Several experiments have been made to ascertain whether this bacillus can convey the disease, but hitherto without success. Pure cultures of it have been injected into the blood of healthy horses producing a temporary rise of temperature, followed by some œdema of the legs, and a slight diminution in the blood cells, but without developing the disease. We have also instituted an experiment by feeding pure cultures of this organism to a healthy horse, the result of which will be given in the next report.

In conclusion, while it is to be regretted that the investigation has not yet resulted in the discovery of the cause of the disease, it must be remembered that years of patient research have been required to elucidate the pathology of many well-known diseases, and if the fruit of our labours is not yet apparent, the facts already noted, and the experience gained, lead us to hope for tangible results in the near future.

I have the honour to be, sir,

Your obedient servant,

F. TORRANCE, *D.V.S.*

The Honourable Minister of Agriculture,  
Ottawa.

No. 51.

## SPECIAL REPORT ON PICTOU CATTLE DISEASE.

CENTRAL BEDEQUE, P. E. I., Sept. 19, 1902.

SIR,—In response to your letter under date August 29, asking for report of my work during the six weeks which I spent in eastern Nova Scotia, in connection with the Pictou cattle disease investigation I beg to say, that after receiving instructions from you at New Glasgow on July 23, I started at once for the town of Antigonish, in order to be more in the centre of the area in which the disease seemed to be most prevalent, your wish being that I should reach all available cases, hold autopsies selecting when possible animals suffering from the disease in its varied stages, and to forward to your pathologist at Ottawa, such material from each case as he may require.

In endeavouring to carry out your wishes I thought wise to secure animals for post-mortem examination on farms in localities somewhat apart. Autopsies were held at Cape George, two cases, Springville, Ardness, Pictou Landing, Ballantyne's Cove, Arisaig, McArras Brook, Antigonish three cases, New Glasgow, Bailey's Brook and Pleasant Valley.

As I before stated my duty was to forward to Dr. Higgins such material as he would require in his investigation, so in accordance with his wish it was my aim to send from each autopsy, Pasteur pipettes and smearings of blood, pipettes of ascitic fluid, fluid



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from pericardial sac, and from gall bladder, also pipettes of pulp from the liver, spleen, kidneys and lymph glands, smearings from the different organs and glands also from intestinal contents, specimens from different organs preserved in formalin, portions of the mucosa of abomasum showing ulcerated patches, also specimens of bone.

I regret to say that I found it impossible to supply all this material from each case, for it must be remembered, that, these autopsies were held in the open field or mountain side, exposed to all kinds of weather. In many cases the sick animals were found in a swamp or bog covered with mud, such conditions as you are well aware, render it a most difficult matter to secure specimens free from contamination, and it was often found after much hard work in holding a post-mortem examination, that most of the material collected was valueless. I have, however, been able to forward to your pathologist fourteen sets of specimens more or less complete, and I trust free from contamination. I have also forwarded post-mortem notes dealing with each individual case which although more or less valuable as an aid in laboratory work, would not I presume be required or in place here, for we find that the same gross anatomical changes were constant in each case though varying much in degree of severity. For the reasons just stated as well as for conciseness I feel that it will meet with your approval if I give here post-mortem notes of what may be classed as a fair average case.

A cow six years old in poor condition would weigh about 600 pounds, animal is lying down, gets up with difficulty and walks with staggering gait, pulse quick and weak, temperature normal, breathing quick and irregular, eyes prominent and amaurotic, some dark coloured diarrhea, visible mucous membranes pale, some froth escaping from mouth, hair rough and general appearance of unthrift. Killed by cutting carotid artery, blood dark coloured and coagulates quickly, muscular tissue soft and flabby a little yellow, peritoneum normal, peritoneal cavity contains a medium quantity (say about four gallons) of serous dropsical fluid which thickens on exposure to air. The mesenteric fat is yellow and infiltrated with fluid, in some places the effusion is thickened, the paunch is half full of food, the muscular walls are somewhat thin and oedematous, the mucosa dark and soft. The second and third stomachs are in much the same condition, the muscular walls of the abomasum are very thin and easily torn, the mucosa is separated in places and hangs in loose folds, it seems thickened and is studded here and there by ulcers in different stages, some recent, some healed, the rest of the alimentary tract is more or less oedematous, but no ulceration of the mucous coat, many of the mesenteric glands are normal in size and structure while others are enlarged and soft. The liver is normal in size and firm, it cuts a little tough and on section shows fibrous bands giving it a mottled or gray appearance, capsule is hard to tear off. Gall bladder is larger than usual, walls are thick, it contains about sixteen ounces of green bile. Sublumbar fat is deficient and saturated with serum, kidneys are normal in size, capsule smooth and on section show nothing abnormal. Suprarenals are also normal, spleen is normal in size but on section is soft and easily broken up, pelvic viscera fairly normal. No fluid in pleural cavity, no adhesions, pleura normal, pericardial sac contains about two ounces of light coloured fluid, heart normal in size, on section appears normal, lungs pale but otherwise healthy, large blood vessels appear normal, thyroid glands normal, other organs not examined.

I omitted to say that Dr. Higgins wished for a few sets of specimens from healthy animals raised in the infected district, and I wish here to thank Messrs. Trotter Bros. of Antigonish who kindly allowed me to visit their slaughter house at my pleasure and to procure the material required.

Much of the time I was in company with Dr. Townsend and as I found him remarkably accurate in diagnosing insidious cases, in fact my post-mortem examinations always confirmed his decisions, and as I considered it might be valuable to have a record of the clinical symptoms as noticed by this gentleman, who has certainly had the opportunity of seeing many more cases of this peculiar disease than has any other person, I requested him to furnish me with a record of the usual clinical symptoms which I take the liberty to give here in his own words.

'History of diseased animals much the same in all cases, isolation for week or so appetite failing, milk going off in quantity and takes on bad odour and flavour. On examination, general appearance unthrifty, emaciation and weakness vary with stage of



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disease, coat rough, patches of old hair unshed, eyes staring and wild expression especially in acute cases, mucous membranes injected and of yellow cast, abdomen pendulent, staggering gait, nibbles at top of grass, partly masticates food, seems unable to complete act. In majority of cases purging which may continue until end, or may be entirely suppressed last few days before death, or you may have constipation throughout whole course of disease, or again may have faeces voided of natural consistency but of dark colour. Very often in connection with these symptoms you have tenesmus. Cases in June, July and August run a shorter course and are more acute in character from 10-15 to 21 days, the balance of year assume a more chronic type, running from two weeks to six or eight, in fact some appear unthrifty all winter and develop in spring when in pasture. Towards end they begin to wander travelling around until they bring up in some bog or swamp. Pulse 70 to 90, temperature subnormal.

In consideration of the fact that systematic investigations are at the present time in progress at your laboratory and that Dr. Higgins' more advanced work may throw some light on the subject you will not I presume expect me to touch upon the possible cause of disease, which, after all, would be mere speculation on my part.

In conclusion I may just say that the sufferers by the disease still hold fast to the popular idea that it is caused either directly or indirectly by the plant 'ragwort' which is growing abundantly all over the disease area, and they account for the reoccurrence of the disease this summer on farms which have remained healthy for a number of years, to the fact, that the exceptionally dry season of last year resulted in a considerable scarcity of fodder which led to the harvesting and feeding of weedy hay, that, had the prospect been more favourable, would have been left uncut.

Although much can be said to offset this view, and without expressing an opinion which in the absence of any direct experiment would be mere speculation, I would but say that it is impossible for any unprejudiced person to listen to the honest testimony of these people who have suffered much by the disease and consequently have given the subject a great deal of thought, without admitting that they have much strong circumstantial evidence upon which to base their suspicions. It is certainly, to say the least, a most remarkable coincidence that the disease should keep so closely within the weed area. It is interesting to note that not one case has ever been reported outside the weed limit, and the disease has never preceded the advance of the weed as the latter has slowly spread from Pictou town where it first gained a footing, and from there we had the first report of the cattle disease.

I have the honour to be, sir,

Your obedient servant,

W. H. PETHICK.

DR. J. G. RUTHERFORD,  
Chief Veterinary Inspector,  
Ottawa.



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No. 52.

## CATTLE TRADE WITH EUROPE.

OTTAWA, October 31, 1902.

SIR,—On July 31 you referred to me the following letter from Mr. C. W. Peterson, secretary of the Territorial Purebred Cattle Breeders' Association, with a request that I should look into the matters dealt with therein, with a view to the securing of definite information as a basis for possible future action:—

REGINA, N.W.T., July 18, 1902.

DEAR SIR,—I have the honour to submit for your information and such action as you may deem advisable, the following resolution which was passed at the recent annual meeting of the Territorial Purebred Cattle Breeders' Association. The resolution was moved by the Honourable G. H. V. Bulyea, Commissioner of Agriculture, and seconded by S. W. Paisley of Lacombe:—

'That the Dominion Department of Agriculture be requested to cause inquiries to be made in connection with the cattle export business, particularly bearing upon transportation facilities and rates to the seaboard, both in the United States and Canada, as well as steamship accommodation and rates from ports in both countries, with a view to discovering why the United States cattle are landed at British ports cheaper and in superior condition compared to the bruised and ill-handled Canadian ranch cattle, consequently commanding higher prices, in order that steps may, if possible, be taken to remedy the difficulties by legislation on the part of the proper authority or otherwise.'

For your information I may state that the rate on a car of cattle from Calgary to Winnipeg is \$98 and for a car of horses, \$108. From Malta, Montana, to St. Paul, Minnesota, a greater distance, the charge is \$85 a car for cattle, and the same rate for horses. It is also understood that the shipping charges on export stock from Winnipeg to the seaboard is much higher than for corresponding distances between corresponding United States points.

Apart from the high transportation rates under which the cattle exporters of the North-west Territories are suffering, it is claimed by those who should be in a position to know, that the facilities for handling stock and the accommodation afforded shippers on this side of the line are inferior to those enjoyed by United States competitors. The result is that the inferior condition of Canadian cattle is materially aggravated by having them landed at British ports in a bruised and exhausted condition which, it is alleged, affects their value. One prominent commission man at Deptford, who was through the west recently, stated that he could almost at any time pick out a dressed carcass of a Canadian steer by its bruised condition. It is possible that the fault to a certain extent lies with the breeders or shippers, and also that it is one which would readily lend itself to correction. Western producers are, however, anxious to ascertain the causes of this, leaving the question of remedy to be considered after the causes have been located.

Yours very truly,

CHAS. W. PETERSON,

*Secretary.*

Immediately upon receipt of the above letter I placed myself in communication with a number of gentlemen from whom I had reason to believe, reliable information on the matter in question might be obtained. Among these may be mentioned Mr. Robert Ironside of Montreal, Mr. J. T. Gordon and Mr. H. A. Mullins of Winnipeg, Drs. Baker and Sugden, inspectors of export cattle for the port of Montreal, Dr. Frink,



inspector at the port of St. John, N.B., and Dr. Hopkins, the veterinary quarantine officer of the department in Great Britain. I also personally asked Mr. Peterson to report on the conditions under which the trade in ranch cattle from Montana and other western states was conducted. I would call your attention to the correspondence herewith furnished, in which the views of these gentlemen on the subject at issue will be found in detail. Their evidence, when summed up, points to the conclusion that while there is room for improvement in the quality of the cattle shipped, and great need for reform in the methods of transportation, the principal cause for the difference in the condition of Canadian and American ranch cattle landed in Britain, and the consequent difference in price, is the fact that the former are shipped directly from the range, while the majority of the latter are finished in the middle States before being sent forward for export.

It would appear, however, that in order to reach a definite conclusion these three matters must be considered together.

Cattle of poor breeding and inferior quality, shipped under the most favourable conditions as regards transportation to eastern Canada, there finished for export and carried to Britain by the most faultless steamship service, will still fail to bring top prices.

Well bred steers of the best quality and in prime beef condition, shipped direct off grass to Europe, are certain to shrink by the way, and to land, as I have often seen them and as described by Dr. Hopkins, in 'store condition.' This is inevitable even with transportation facilities almost perfect.

Again, the very best class of range cattle shipped under existing faulty freight conditions to Eastern Canada, will require much longer time and more feed to finish them for export than if they had been transported in better cars, properly fitted and run at a reasonably fast rate of speed. Furthermore, if the accommodation and attendance on shipboard are, as is reported, inferior and imperfect, a consequent undue shrinkage is bound to occur on the transatlantic trip, which will absorb a large share of the profit on the shipment.

The ideal condition would thus appear to demand for its fulfilment cattle well bred and of good quality, in prime flesh, carried from the range by a vastly improved railway service, finished on a grain ration in the East, and conveyed to Britain with every precaution on specially fitted cattle ships under the care of experienced and skilful attendants.

This is not by any means a fancy picture. It is exactly what is being done with the majority of the American cattle shipped to Europe at the present time.

The inferior cattle seen by Mr. Peterson in Montana never, as a rule, get east of Chicago. The railway cars and the cattle freight service on the American roads are admitted on all hands to be much superior to those furnished by the Canadian Pacific Railway Company.

Dr. Dyson, the officer in charge of the inspection work of the Bureau of Animal Industry at the Chicago stock-yards, assures me that not more than ten or twelve per cent of the cattle coming from the western ranges are exported direct, and that the number is decreasing year by year.

The great majority of the range cattle are sold to farmers and dealers in the corn belt, dehorned if this has not already been done, and fed for a period of about ninety days. They are then brought to Chicago, carefully inspected, all the inferior cattle culled, and the remainder passed and tagged for export. The inspection is done by the officers of the bureau, and every precaution is observed to ensure the rejection of all but the best animals.

From Chicago they are taken to the sea-board by fast trains and in cars specially fitted for feeding and watering en route. They are loaded on these cars under careful inspection, no over-crowding being allowed. The men in charge are almost invariably regular, salaried employees of the shippers, and the same is true of the foremen on the ships and of those employed under them.

As a result of this systematic handling American cattle, originating on the range, arrive in Britain in much better condition than do similar cattle from Canada, and of course, command correspondingly higher prices.



## SESSIONAL PAPER No. 15

It is a question as to how far the system on which American range cattle are handled could be profitably applied to those from western Canada. Eastern Canadian prime stall-fed cattle land as a rule in excellent condition and compete closely in prices with the best American bullocks. There is no reason why Canadian range cattle, if treated on similar lines, should not compete as closely with steers from the western states.

I understand that you have arranged for an interesting experiment to take place in the near future with the object of testing the effect of a grain ration on a number of Canadian range cattle.

I trust that this may prove so successful as to lead to a general movement in the same direction. The present system of marketing these cattle is wasteful to a degree and no time should be lost in arousing both the western rancher and the eastern feeder to the opportunity now offering for the building up of a trade mutually beneficial and nationally profitable. Meanwhile nothing should be left undone in the way of improving transportation conditions between the range country and the sea-board, carriage being a most important factor no matter what the ultimate destination may be.

It must also be borne well in mind, that good feed and high freight rates give much better returns on well-bred cattle than on scrubs, and that for this reason a steady stream of good bulls of the beef breeds should be kept constantly flowing into the great grazing region of the Dominion.

I have the honour to be, sir,

Your obedient servant,

J. G. RUTHERFORD,

*Chief Veterinary Inspector.*

The Honourable  
The Minister of Agriculture,  
Ottawa.

MONTREAL, August 8, 1902.

SIR,—Yours of the 6th inst. to hand and noted. I shall give you my views.

Bulk of stock cars at present used by C. P. R. are too narrow, cattle cannot stand at ease across them, tails get rubbed and causes the animal to keep moving, crowding, thereby slipping, falling, bruising, &c. Also it is reported from time to time, that trains are handled in a very careless manner, rough shunting, hard jolts, &c., throw cattle and bruise them, our men oftentimes so report.

I am not posted on rates from Malta to St. Paul, but I do know that the rate from Cut Bank, Montana, to Chicago is 67½ cents and to Boston from Chicago it is 28 cents, making 95½ cents. The rate from similar points north of Cut Bank in Alberta to Boston, C. P. R., is 102 cents per hundred pounds, or \$13 per car more on Canadian cattle as against Montana. The Montana cattle get a much superior car to travel in, better handling in transportation. To get back to steamship rates, at present there is very little difference between vessels plying between Canadian ports and Liverpool and American ports and Liverpool. We have some poor class ships, also poor class ships from American ports and good at each port as well. The rates are 5 shillings lower from American ports at present, but that is offset by extra railway rate C. P. R. exact. I do not know the reason why the C. P. R. should retain the old rate that was in force years ago from the west on live stock, when grain rates have been reduced from time to time. If the government has any power they should exert it to help one of the principal industries in the west.

Respectfully yours,

R. IRONSIDE.

J. G. RUTHERFORD, Esq.,  
Chief Veterinary Inspector,  
Ottawa, Ont.



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WINNIPEG, August 21, 1902.

DEAR SIR,—Your letter of August 7 to hand, stating that the Dominion Department of Agriculture has been requested to make inquiries in connection with the cattle export business, particularly bearing upon the transportation facilities and rates to the seaboard, with a view to discover why the United States cattle are landed in British ports cheaper and in superior condition, compared to the bruised and ill-handled Canadian ranch cattle, &c.

In the first place, the Americans have better cars for transportation; the old Canadian Pacific Railway cars now in use are too small and narrow, although a very great improvement has been made in the last few years by putting on new cars, and that is considered one reason why the American cattle are landed in the sea ports in much better condition than the Canadian stock. Another reason is that no American cattle are shipped direct from the ranches to the old country; any cattle that are shipped to Chicago that are not slaughtered there are sold to the farmers in the surrounding states, fed five or six months, and properly domesticated. In the case of Alberta cattle, they are loaded there and shipped direct to the old country, so you can readily understand that cattle that have never been handled and wild as they are must be bruised more or less in going into the cars, while domesticated animals would not be so wild, and consequently be in better condition.

You will readily see that the Alberta ranchers have no idea but that the American cattle are shipped direct from the ranchers for export, the same as the Canadian cattle, which is not the case. In reference to the rates, I have not got them at my fingers' ends to-day, but can give them to you if required. The American freight rates are much cheaper than ours, and their mode of transportation is much better, not only in the cars supplied, but their stock trains are given much faster runs than ours.

I presume, the proper way to get at the bottom of this would be to appoint a commission to investigate the matter thoroughly, that is, the handling of the stock, both in this country and on the other side; then you would see the reason for such a discrepancy between the price of American and Canadian stock.

I might say, for your information, that I visited the lairages in Liverpool ten years ago and also last spring, and I was amazed at the great improvement there was in the transportation facilities during that time; I saw a whole ship-load of Ontario domesticated cattle landed there, and they looked as if they had come from their own stables.

We are paying in Alberta this year, for four-year-old steers, from \$50 to \$55 per head, I think this is a very large price for ranchers when you consider that we have to sell them for a penny a pound less than the American corn-fed cattle sell for.

This is a subject which I am very pleased that you have taken up and introduced, and one that will stand a very close investigation; we will be very glad, either as a firm or as individuals, to give you all the assistance possible.

We do not wish to be unfair with the corporation, but to have the matter dealt with fairly. You being a late resident of the west, should know how very important it is that nothing should be put in the way of the cattle interest to hamper it. I feel that anything in that respect would be a very great detriment to the North-west Territories.

\* \* \* \* \*

Yours truly,

(Signed),

J. T. GORDON.

Dr. J. G. RUTHERFORD,  
Chief Veterinary Inspector,  
Ottawa, Ont.



## SESSIONAL PAPER No. 15

WINNIPEG, August 30, 1902.

DEAR SIR,—In reply to your favour of August 7, I may say that the delay in answering same was due to my being West on the ranges.

The main complaint of the Canadian shipper is the bad condition of the stock cars provided for the shippers out West and not enough feeding yards suitable along the route. Some of the cattle get badly bruised by the stock cars having bolts projecting. The company is giving us better dispatch this year, but there should be an effort made to run stock trains with the best engines and not less than 22 miles an hour.

The rates are much higher than those charged to the south of us considering the class of cars and dispatch given. In fact, there are a number of our cattle going south so the shipments from here will be lighter.

The cancelling of the stock buyers' transportation will stop many cattle from getting out this season, as the distances are so great out here and a new country, that many bunches are left because of the expense of getting to them.

Yours truly,

H. A. MULLINS.

J. G. RUTHERFORD, Esq.,  
Chief Veterinary Inspector,  
Ottawa, Ont.

MONTREAL, August 18, 1902.

SIR,—In reply to your letter of the 7th instant, I beg to say that so far as rates are concerned I have no special knowledge, therefore can say nothing on that point.

The facilities for the shipment of cattle from Canadian ports now that all cattle are loaded on barges comparatively near the stock yards, and put from the barges directly on to the ships, ought to make it possible for them to be shipped with a minimum of bruises of any kind.

I think from what I have seen or had reported to me, the facilities in that respect are as good at this port as at any. It might be an improvement if the barges were nearer to the stock yards, but the present arrangement is such an improvement on the former mode of loading that there is little ground for complaint. So far as I can see the Canadian cattle that are more liable to be bruised than American, are those from the North-west ranches, and due to the difference in the character of the cattle rather than to any defect in the shipping facilities at this port as compared with those at the United States ports. The American cattle are, as a rule, quiet, whilst the great majority of Canadian ranchers are wild, and when they are unloaded from the cars, rush out in spite of efforts to restrain them and are very frequently bruised against the sides of the car doors, and in the yards they rush about on the slightest disturbance, hitting against posts and gateways. Some of these cattle arrive with bruised rumps, that is, I think, partly due to the use of some of the old narrow cars which are not wide enough for large cattle to be brought such long distances. I do not think that cattle arrive in such a bruised condition as is represented by the Deptford salesman. Mr. Ironsides, of Messrs. Gordon & Ironsides, who are the largest shippers of Canadian ranch cattle, assure me that the percentage of bruised carcasses is exceedingly small. He showed me the returns of several shipments; the largest number of bruised sides was four out of 202 head.

In order that the possibilities of cattle being bruised in coming to port of shipment, may be lessened, I would suggest that all shipping cattle, especially ranchers, should only be shipped in the wide, long, modern cars, not in the old-fashioned narrow ones; that all car doors should be widened and have rounded edges at both sides, to make it less likely for the point of the hip to catch. It is in going through the car doors that a large proportion of what bruising there is occurs. I think if it could be practically accomplished, it would be a benefit if some arrangement could be made for feeding and watering the



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cattle coming long distances in the cars, so that it would be unnecessary to unload them so often. I also think it is worth considering the advisability of dehorning all calves on the ranches to make them quieter and easier to handle, and the mixing of eastern bred steers with the ranch-bred also makes these cattle quieter and much easier to handle, which is the thing most to be desired.

The fittings and space in the ships are the same from Canadian and American ports, hence there can be no reason that I can see, why cattle cannot be carried as safely from our ports as from those in the United States. I believe a large proportion, if not all, American cattle that are shipped are grain fed, and whilst this would not (except by making them quieter to handle) prevent their being bruised, must make it reasonable to expect that they will stand the voyage better than cattle taken directly from the ranges, consequently will land in better condition. If the cattle from the North-west could have at least forty-eight hours for rest and feeding at the stock-yards, I feel certain they would be in better condition to stand the voyage.

I have the honour to be, sir,

Your obedient servant,

M. C. BAKER,

*Inspector.*

J. G. Rutherford, Esq.,  
Chief Veterinary Inspector,  
Ottawa.

MONTREAL, August 15, 1902.

DEAR SIR,—The resolution of the Territorial Pure Bred Cattle Breeders Association in regard to export cattle, the wording of which is contained in your letter of August 7, raises the question of rates, transport facilities, and the condition of Canadian ranch cattle when landed in England. The question of rates is, as you know, a most complicated one, upon which I can give you no information with the exception that the cattle rate out of American ports is usually slightly lower than out of Montreal.

The facilities for handling cattle in the port of Montreal have been very much improved of late years.

The yards at Point St. Charles have been improved almost beyond recognition, and the system of bargeing cattle down to the ship has done away with the reloading on cars or the other alternative of driving them to the ship's side.

I am not familiar with any American port with the exception of Portland. There the cattle are reloaded on cars at the stock-yards and unloaded at the ship's side. The facilities at Portland are no better than here, and I am told by such men as Mr. Snell and Mr. Coughlin, both of whom are heavily engaged in the cattle trade, that they are no better in Boston.

The American cars are in my opinion somewhat superior to ours, being about two feet longer and, what is of more importance, a little wider; and also some are provided with means for feeding and watering en route.

I have noticed that American cars coming into Montreal from Chicago average about 17 to 18 cattle per car, while Canadian cars from Toronto carry from 19 to 20 head. While there are at present some cattle ships sailing from Montreal which leave nothing to be desired, the average boat is not so good as the average boat leaving American ports.

The United States Government also keep careful records of the losses on each ship. Should the loss on any ship be above the average, the matter is at once made the subject of investigation.

At the present time a great many Canadian cattle (domestic) are passing through Point St. Charles for shipment to England via Portland and Boston.

I am informed that these cattle do not land in any better condition, that the losses are no less, and that they do not make any more money than similar cattle shipped on the same class of vessels out of Montreal.



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With reference to the condition of the cattle when landed in England I judge that the resolution of the Pure Bred Cattle Breeders Association and the remark of the Deptford commission man is intended to apply solely to ranch cattle.

I should find it somewhat hard to believe otherwise, for in a note made two years ago at Deptford I see that a city of London meat inspector told me distinctly that from the point of view of a meat inspector that Canadians left nothing to be desired. No Canadian ranchers pass through my hands at Point St. Charles, but until the present year a fair number of American ranchers passed over the Grand Trunk Railway for shipment at Montreal.

Now between the American and Canadian ranchers there are some marked differences. The Americans are not so wild, they do not knock themselves or each other about when being handled or unloaded on cars nearly so much as do the Canadians.

The Americans are evidently not solely grass-fed, and are partially domesticated. Again, most of them are dehorned.

I am told that there are very few, if any, solely grass fed American ranchers shipped direct from the ranches to the seaboard as the Canadian ranchers are, and I believe that the partially domesticated condition of the American ranchers has a great deal to do with the superior condition in which they land.

Dr. Baker, being in charge of the Canadian Pacific Railway yards, will no doubt give you particulars of the journey which the cattle take over that road, and his ideas as to how it may be rendered less harmful for the cattle.

To sum up, it would seem that there are three factors operating against the Canadian ranch cattle. 1st. Their somewhat inferior condition before starting on their journey to the seaboard. 2nd. The length and hardships of that journey. 3rd. The wildness of the cattle themselves, resulting in their own injury.

I have the honour to be, sir,

Your obedient servant,

B. A. SUGDEN,

*Inspector.*

J. G. RUTHERFORD, Esq., V.S.,  
Chief Veterinary Inspector,  
Ottawa, Ont.

ST. JOHN, N.B., August 12, 1902.

SIR,—I herewith submit summary of opinion in regard to resolution forwarded in letter August 7, 1902.

The maximum number of fat cattle to be placed on car should not exceed 17. (U. States method).

All cattle for export should be dehorned. (U. States method).

Export cattle should be shipped on cars fitted in some measure to supply food and water en route. (U. States method).

All stock cars should be fitted with a drop or swing door providing a safe exit. (U. States method).

Insist upon railway authorities passing an imperative order that loafers and all idlers be ejected summarily from stock-yards and that responsible men only be employed who shall display badge of office and that the value and perishable nature of the property entrusted them be duly impressed upon employees. That the foreman of the stock-yards shall be sworn in and have all powers of a policeman to summarily arrest any one engaged in an act of cruelty to any animals confined therein.

Particular care should be taken that no crippled or lame animal be allowed to proceed to the seaboard for export.

That thoroughly capable men and interested men should accompany the shipment en route to the seaport.

Insist that every animal shall be roped before being placed on shipboard.



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Cattle should not be placed on shipboard until the loading of general cargo is completed.

Insist that the men shipped on the articles as cattlemen are able-bodied sober, capable men and paid a living wage.

Insist that when ranch cattle arrive at the port of export that they may not be held back on every flimsy excuse to save a small expense for food and rest at the stock-yards. Send cattle a day or two ahead for rest and food, the port of St. John, N.B., has the accommodation.

Trace out the ships which lose cattle and act accordingly.

I have the honour to be, sir,

Your obedient servant,

JAMES H. FRINK.

*Inspector.*

J. G. RUTHERFORD, Esq., V.S.,  
Chief Veterinary Inspector,  
Ottawa.

GLASGOW, SCOTLAND, September 9, 1902.

SIR,—In accordance with the instructions sent me in letter of August 2, I visited the Yorkhill (Glasgow), Birkenhead and Deptford (London), foreign cattle markets.

I consulted with a number of officials, commission men and shippers, in addition inspected the cattle myself and saw some sales made.

It is important at the beginning in reply to an assertion regarding the bruised and otherwise inferior condition of the Canadian ranch cattle as compared with States ranch cattle, to mention the fact that, as is well known, Canadian ranch cattle come right off the grass, have no grain in them, are wild, and have a long tedious unbroken railroad trip before reaching the seaboard.

The States rancher is rarely shipped direct to the market from the range, but is taken to feeding places in the corn belt and when well finished from there to Chicago, at which place it may be picked out for export. The frequent handling has had the effect of rendering States bullocks comparatively quiet, which is also aided by the fact that those bullocks are polled either by breeding or dehorning. Under such conditions the States bullock has a big advantage.

Visits to Yorkhill lairage showed a few shipments of Ontario cattle of inferior quality on hand, but on the whole free from bruises. These cattle comprised the cargoes of the SS. *Rosarian* and *Corean*. At this port practically no cattle are reported bruised, but on the other hand few ranchers are marketed there. The best price obtained for the cargoes above mentioned was £19 10s. (about \$97), the average stuff bringing £14 (\$70).

A few days later (August 29) I visited the Birkenhead lairage where I saw the cargo of the SS. *Roman* (694 head). In the lot I saw fifteen to twenty cattle with badly bruised hooks, the swelling in some cases being extensive. A couple of steers had their stifles out (patellar dislocation), the damaged ones I am informed by the veterinary inspector at this lairage, belonged to a consignment of forty rushed on board at the last moment. Out of the forty three were badly bruised and seven were ordered to be slaughtered right after arrival.

The veterinary inspector reports 'that on the whole few cattle are bruised and that when bruising occurs, it is due to the wildness of the ranch cattle, who bruise themselves during the unloading by rushing up the gangways and chutes, thus causing jams with the resultant damaged hooks and bruises.' No branded (range) States cattle were coming to this market at the time of my visit.

A visit to the Deptford lairages was paid September 6, and notes taken of the classes of cattle there. I had the good fortune to meet Mr. Philcox, superintendent of the lairages, who said 'any bruising that occurs is due to the wildness of the cattle, and



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may occur at any point during their passage from the range to the market, may be on the cars or in the loading and unloading.'

The impression one gets of the Canadian ranch bullock is that it has shrunk heavily on the trip; in conversation with the European representative, Mr. Ironside, jr., of Gordon, Ironside & Fares, he remarked on the great amount of hay it took to get the ranch cattle filled up after landing.

Deptford is the market for the tops of the foreign cattle, consequently large numbers of grass-fed range cattle do not appear there as compared with Birkenhead.

From the condition of the ranchers on arrival a person is warranted in assuming that the methods of handling and shipping can yet be greatly improved upon. However good the condition the ranch bullock is on leaving the west, it never seems to reach the old country markets in any better than 'store condition.'

I have the honour to be, yours obediently,

A. G. HOPKINS,

• *Inspector.*

J. G. RUTHERFORD, V.S.,

Chief Veterinary Inspector, Ottawa.

REGINA, N.W.T., September 25, 1902.

SIR,—I returned from Montana a few days ago, and in accordance with our conversation on the subject, I took occasion to acquaint myself with the stock-yards and car system of the American transcontinental lines. Contrary to my expectations, I found that the yards along the Great Northern Railway Company's line were not as a rule as convenient and well kept as those on the Canadian side. I went from Helena to Bozeman in order to look over the yards of the Northern Pacific Company's line, and, while they are in a much better condition than those of the Great Northern, in my opinion, the yards of the Canadian Pacific Railway Company compare very favourably with those of the companies above referred to. I found that where chutes had been constructed such had been built at the expense of the Montana Stock Growers' Association. Much dissatisfaction exists throughout the state in consequence of the insufficient stockyard accommodation, but the railway companies in Montana do not seem to have any desire to meet the wishes of shippers in the matter. I am reporting separately on the subject of live stock cars.

I am, sir, your obedient servant,

CHAS. W. PETERSON,

*Inspector.*

J. G. RUTHERFORD, Esq., V.S.,

Chief Veterinary Inspector,  
Ottawa.

REGINA, N.W.T., September 25, 1902.

SIR,—In accordance with our conversation on the subject of live stock cars, I devoted some little attention during my recent trip through the State of Montana to the obtaining of information respecting the accommodation furnished to shippers of live stock, in order to ascertain whether the facts were correct as set forth in the resolution recently submitted to your department by the Territorial Purebred Cattle Breeders' Association, to the effect, that Canadian cattle were landed at old country ports in a much worse condition than United States cattle, owing to the superior shipping accommodation available on United States railway and steamship lines. The result of my investigation is, that there can be no reasonable doubt, that the cars furnished for the transportation of range stock from the State of Montana, both on the Great Northern Railway and the Northern Pacific Railway, are infinitely superior to the Canadian



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stock cars. Montana shippers informed me that Street's stable cars are invariably furnished, which enable them to feed and water as often as necessary en route, thus obviating the necessity for starving the animals between feeding points. It is not to be understood that the cattle are taken straight through from Montana points to Chicago, as such is not the case, feeding points being established where the cattle may rest on the trip. I made careful inquiry as to dehorning and found that the practice is not general throughout that particular state. As a rule, Montana range cattle are of a very much inferior quality compared to cattle raised in Southern Alberta and Western Assiniboia, which may be partly accounted for by the fact that the grade bull is a very popular institution on the other side of the line. The great bulk of Montana cattle are sold as feeders in the southern states, but I was rather surprised to find, that in favourable years, a considerable number of cattle are purchased in Montana for direct export. If records could be obtained of the sale of such shipments in Liverpool, a fair comparison would be established. It stands to reason that grain fed and docile cattle will ship better than Canadian range steers, but granting that transportation facilities are equally favourable, the Alberta steer should land at Liverpool in as good condition as a Montana export steer.

I am, sir, your obedient servant,

CHAS. W. PETERSON,

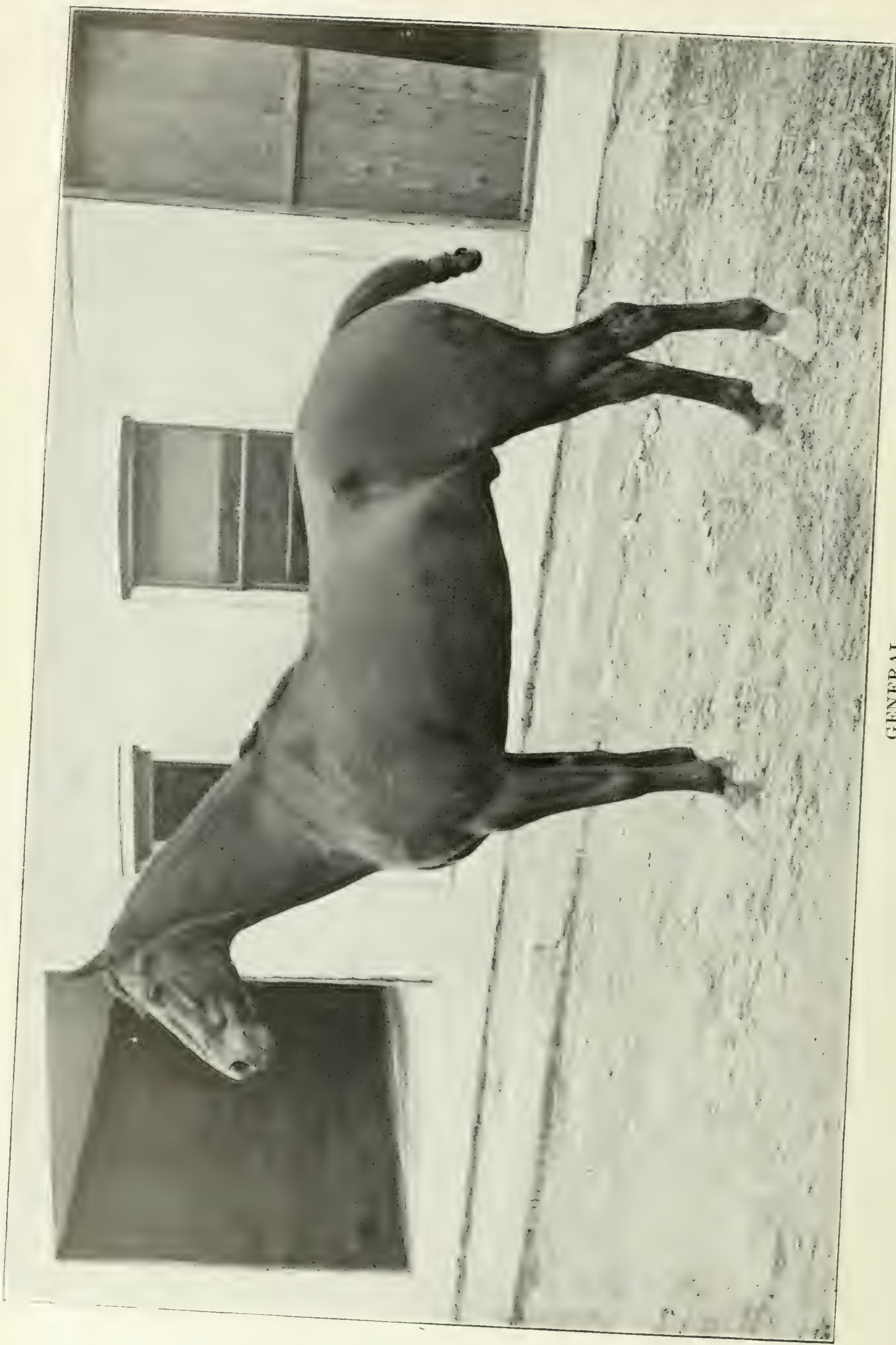
*Inspector.*

J. G. RUTHERFORD, V.S.,  
Chief Veterinary inspector,  
Ottawa.



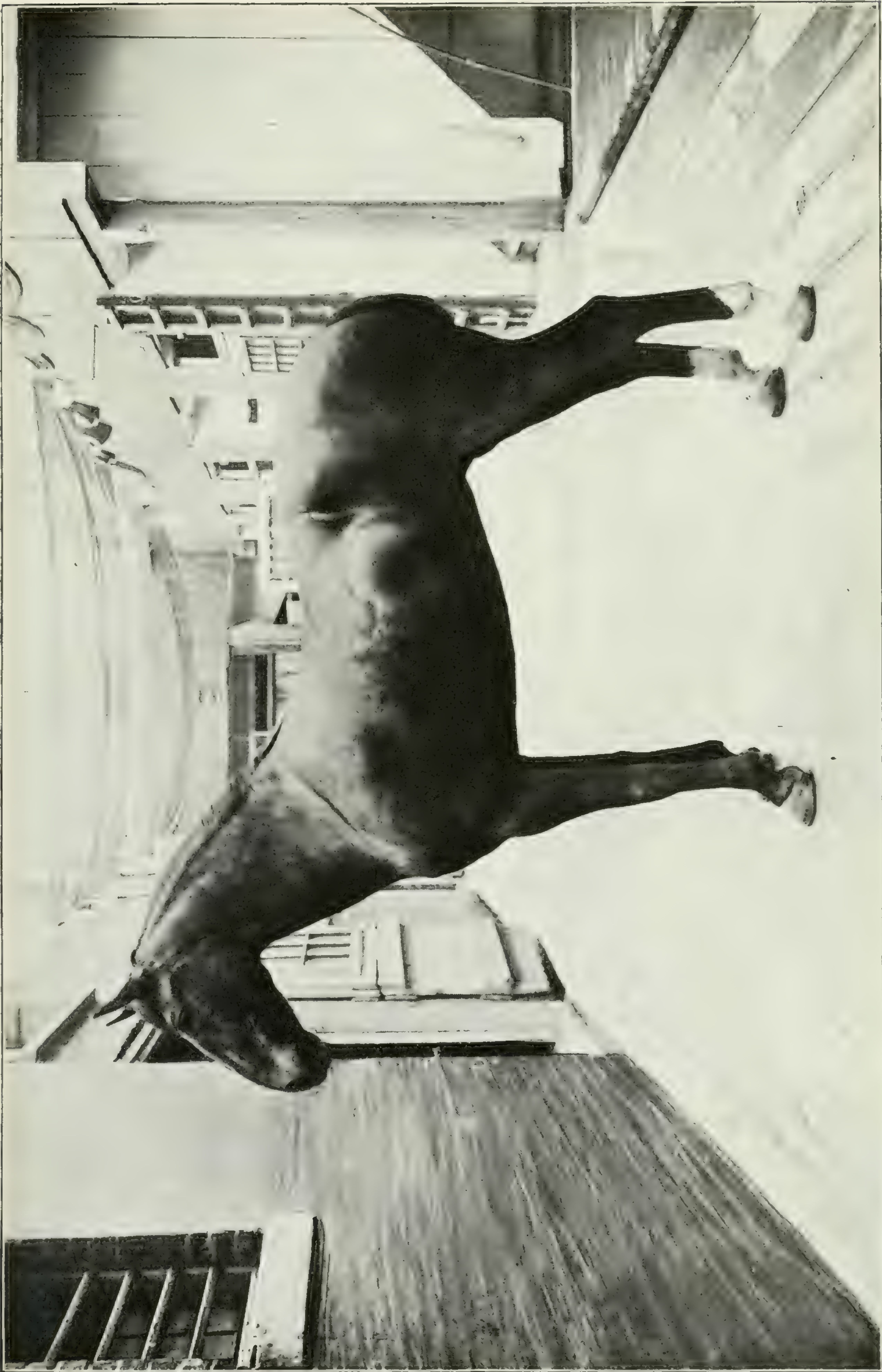






GENERAL.





CASSANDRA.









HERO.







## No. 53.

## THE BREEDING IN CANADA OF HORSES FOR ARMY USE.

While the supply of horses suitable for military use has always, even in times of peace, been a serious question, the experience of our South African troubles has given it an importance altogether new and somewhat startling. It has now been clearly shown that troops under modern conditions of warfare must be able to move rapidly from place to place, and that the mounted soldier has thus an immense advantage over the less mobile infantry man.

This development has led to the purchase by the British Government, during the present campaign, of a very much larger number of horses than would otherwise have been required. Nor has the lesson been learned by Britain alone; all military nations have been closely watching the operations in South Africa, and there is no room for doubt, that the general demand for horses suitable for army purposes will be much greater in the future than in the past. Of the horses purchased for use in Africa the Dominion has by no means furnished her fair share, although in addition to those taken by our own contingents, a considerable number have been picked up in Eastern Canada by Lt.-Col. Dent, of the Remount Department of the British Army. It is not, however, an easy matter at present to obtain in this country any large number of horses altogether suitable for army use. No encouragement to produce them has, until very recently, been shown to breeders, and there being no very active home demand for any but the very best of the sorts now asked for, they have not been bred to anything like the extent of which the country is capable. After the visit of Colonel Ravenhill, in 1887, the western ranchers, in expectation of a market, went to much trouble and expense in securing and importing suitable foundation stock, and as a result were successful in producing many first class cavalry horses. As, however, beyond a limited number taken by the North-west Mounted Police and a few by foreign buyers, there was no sale for them as such, the breeders have largely turned their attention to other and, under the circumstances, more profitable lines of stock.

The natural conditions in Canada are, it need hardly be said, most favourable for the production of the animals wanted, while in the event of serious international disturbance Canadian horses would always be available for Imperial use while it might be impossible to procure them in foreign countries. Again, through the medium of our great trans-continental railway they could be shipped from either Atlantic or Pacific ports to any part of the world where they might be required.

In view of the strong probability that the demand hitherto lacking will in the future be such as to warrant the breeding in fair numbers of the horses needed for military use, a brief description of those now being sought for and purchased by the agents of the British war office, and a few hints as to how they may be produced, will not be out of place.

They are of three fairly distinct types as required for artillery, cavalry and mounted infantry.

At the Canadian horse show held in Toronto in April, 1900, the Dominion Government gave special prizes for each of these classes, and as Lt.-Col. Dent, the Imperial remount officer detailed to purchase in Canada, was one of the judges, thus making the selections authoritative, a description of each first prize animal, together with its measurements, will be appended to the general list of requirements in all three divisions.

## THE ARTILLERY HORSE.

The artillery horse asked for by the army buyer is really a smart, active van or express horse on short legs, with plenty of bone and substance and enough quality to



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ensure staying power in fairly fast work. He should stand from 15-2 to 16 hands, weight not less than 1,300 lbs., and measure at least 8 inches below the knee and 72 inches in girth. Considerable variation in type is permissible, the work of the horse artillery demanding greater speed and therefore more warm blood than are necessary for ordinary field artillery, while in all batteries properly horsed, the lead and centre pairs are slightly taller and more rangy than the wheelers, the latter requiring greater strength and substance. The first prize entry at Toronto last spring was of the lighter sort, being in fact the pure-bred Hackney mare 'Cassandra.' She stood 16 hands, weighed 1,325 lbs. and girthed 76 inches. She measured  $8\frac{1}{4}$  inches below the knee and  $20\frac{1}{4}$  inches round the arm; from crest to withers 36 inches, withers to croup 29 inches, croup to tail, an important point in all military horses, 19 inches. Although in this particular instance the prize went to a Hackney, it does not, by any means, follow that gun horses should be either wholly or partly of that breed. They may be obtained by the judicious use of the Thoroughbred horse on mares of size, substance and action, or by stinting good half-bred or strong roadster mares to a biggish Hackney or breedy coach sire. So long as they show sufficient quality to ensure activity and endurance and at the same time meet the requirements as to size and substance, the question of pedigree is of secondary importance.

#### THE CAVALRY HORSE.

The cavalry horse is of a somewhat different type, and one at present too rare in Canada, owing to the preference shown by many light horse breeders for the American trotting sire, an animal possessing but few of the qualities and characteristics of the riding horse.

Colonel Ravenhill in his report says:—'A malformation in the Canadian horses which might advantageously be brought to the notice of breeders is that their quarters are short and very drooping, a serious defect in a military horse. Indeed we had to reject as unsuitable a considerable proportion on this account; this is not only a great dissight, but where a mounted soldier has to carry a kit on his horse's back it amounts to an insuperable objection; it has arisen from the too extensive use of the American trotter for stud purposes, this defect being very apparent in that horse. This is an additional reason for the more continuous introduction of the English Thoroughbred, or such horses which are very straight in their backs and quarters, with tail set on high.'

To get good cavalry horses the Thoroughbred sire is almost indispensable, as in no other way can the lengthy rein, sloping shoulder, deep chest, strong loin and long quarter so necessary in this class, be obtained with any certainty or regularity. Freedom of movement is essential, but high action and great trotting speed are neither required nor wanted. Horses of this class should stand not less than 15-1 nor more than 15-3, and should measure at least 8 inches below the knee and 70 inches in girth.

The first prize at Toronto was taken by a brown gelding named 'General' said to be by a Thoroughbred horse. He was a remarkably well proportioned weight carrier of considerable length and great substance. His measurements were as follows:—height 15-3, cannon bone 8 inches, arm 21 inches, crest to withers 37 inches, withers to croup 33 inches, croup to tail 15 inches, girth 74 inches.

Horses of this stamp can best be procured by the use of selected Thoroughbred sires on strong half-bred mares, on the better class of roadster mares, or on mares from Hackney or Coach sires, provided they show some blood and quality. On mares having a preponderance of warm blood or those showing any inclination to weediness, a good Hackney horse might be advantageously used.

#### THE MOUNTED INFANTRY HORSE.

The mounted infantry horse for which such an unprecedented demand has recently arisen and which is likely to be even more sought after if present war conditions continue to prevail, is a smaller and cheaper animal than either of those already des-



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cribed. He is in fact a cob, a strong pony on short legs, with as much quality as can consistently be looked for in conjunction with the substance required to carry an armed man. He must have a fair shoulder and a good back, be deep through the heart and stand squarely on good legs well furnished with bone. In height he may be from 14·1 to 15·1, but 14·3 is the favourite standard with Lt. Col. Dent. Strength is the great desideratum, but a reasonable amount of activity is indispensable.

The little horse 'Hero' which took first prize in Toronto, stood 15·1, measured 7¾ inches below the knee and 19½ round the arm; from crest to withers he was 34 inches, withers to croup 27 inches, croup to tail 15 inches. He girthed 73 inches and as the measurements show, was an excellent type of the weight carrying cob. Such horses can be obtained by a stout Thoroughbred sire from French Canadian or other strong pony mares, or by the judicious use of the Hackney horse on the smaller roadsters and on those little mares too common in Canada, resulting from the ill-advised use of the racing or rather sprinting type of Thoroughbred on light mares of trotting blood or other mixed breeding.

## GENERAL REQUIREMENTS.

In times of peace no horses are bought at less than four nor more than seven years old.

As regards colour, bays, browns, chestnuts and blacks are preferred; a few grays are required for special corps, but odd coloured horses are not wanted.

No unsound or seriously blemished horse will be taken; the veterinary examination is fairly strict but is also strictly fair. Un-docked horses are preferred and no horse with a very short docked tail will be taken.

In time of war, however, when the demand, as a rule, exceeds the available supply, purchasing officers overlook many minor defects, provided the animals offered are sound and serviceable, while conforming generally to the requirements of the service.

## ADVICE TO BREEDERS.

Breeders on the Western ranges will, no doubt, find it profitable from this time forward, to devote considerable attention to the production of horses especially adapted for military use.

In the other portions of the Dominion the supply of such horses can be enormously increased with but little extra effort or expense on the part of the breeder.

Immense numbers of light horses and ponies are annually bred in Canada of which, many when grown are, owing to their non-descript character, of but little value. If the breeders of these animals would send their lighter mares to pure bred stallions, of the British breeds, intelligently selected with a view to the production of a definite type of military horse, a vast improvement in our clean-legged stock would speedily manifest itself.

High prices would then as now be easily obtainable for really superior animals; most of the others would find ready sale for army use as well as for other purposes, while the misfits and object lessons would be less numerous and, except by comparison, not less valuable, than they are at present.

J. G. RUTHERFORD.

*Chief Veterinary Inspector.*







REPORT  
OF THE  
CANADIAN COMMISSION  
AT THE  
PARIS EXHIBITION







## KEY TO PLAN OF EXHIBITION GROUNDS AND BUILDINGS.

- I. Education and Instruction.
  - II. Works of Art.
  - III. Appliances and General Processes relating to Literature, Science and Art.
  - IV. Mechanical Engineering.
  - V. Electricity.
  - VI. Civil Engineering and Transportation.
  - VII. Agriculture.
  - VIII. Horticulture and Arboriculture.
  - IX. Forests, Sport, Fishing, &c.
  - X. Food Products.
  - XI. Mining and Metallurgy.
  - XII. Decoration and Furniture of Public Buildings and of Dwelling Houses.
  - XIII. Thread, Yarns, Textile Fabrics and Clothing.
  - XIV. Chemical Industries.
  - XV. Various Industries.
  - XVI. Social Economy, Hygiene, and Public Charitable Relief.
  - XVII. Colonization.
  - XVIII. Army and Navy.
  - AAAA. Foreign Pavilions.
    - B. Mercantile Marine (Part of Group VI.).
    - C. Pavilion of the City of Paris.
    - D. Historical Exhibition of French Art.
    - E. Eiffel Tower.
    - F. British Colonies and India.
    - G. Circular Railway.
- . —— . —— Boundary of the Exhibition.







## REPORT OF THE CANADIAN COMMISSION AT THE PARIS UNIVERSAL EXHIBITION, 1900

The Canadian Commissioners to the Paris Universal Exhibition of 1900 have the honour to present the full report of their operations.

In September, 1896, the Canadian Government received through the Imperial authorities an official invitation from the French Government to take part in the great Universal Exhibition of 1900, which was then in course of preparation, and having decided to embrace the opportunity of showing the developments that had been made in all departments of trade and commerce in Canada, as well as of supplying information to Europeans concerning the natural wealth of the Dominion, accepted the invitation by Order in Council of April 24, 1897.

By Order in Council dated October 20, 1897, the Right Honourable Lord Strathcona and Mount Royal, G.C.M.G., &c., was appointed representative of Canada on the Imperial British Commission, Chairman of Colonial Committee and member of the General Executive Committee.

Another Order in Council was passed on February 2, 1899, appointing the following named gentlemen to be Canadian commissioners at the Paris Universal Exhibition, and to proceed at once with the work of organization. Subsequently the Honourable J. I. Tarte, Minister of Public Works, was appointed by Order in Council, dated March 13, 1900, Chief Commissioner.

### BOARD OF COMMISSIONERS.

The Honourable Sydney A. Fisher, Minister of Agriculture, Chairman.

Dr. G. M. Dawson, C.M.G., LL.D., F.R.S., Director of the Geological Survey, Ottawa.

Dr. William Saunders, LL.D., F.R.S.C., Director of Experimental Farms, Ottawa.

James W. Robertson, Esquire, Commissioner of Agriculture and Dairying, Ottawa.

Major F. F. Gourdeau, Deputy Minister of Marine and Fisheries, Ottawa.

A. H. Gillmor, Esquire, St. George, N.B.

J. X. Perrault, Esquire, Chevalier de la Légion d'Honneur, 80 St. Denis Street, Montreal, P.Q.

James George Jardine, Esquire, 28 Front Street East, Toronto, Ont.

William D. Scott, Esquire, Winnipeg, Man.

Auguste Dupuis, Esquire, of the Village des Aulnaies, P.Q., Secretary.

On August 9, 1900, the Honourable Charles Burpee, of St. Stephens, N.B., was appointed commissioner in the place of the Honourable A. H. Gillmor, whose resignation was accepted on April 4, 1900.

Subsequently the following appointments were made by Order in Council :—

On April 17, 1900, the Honourable F. G. M. Déchene, Minister of Agriculture of the Province of Quebec, was appointed Honorary Commissioner.

On April 25, 1900, the Honourable F. E. A. Evanturel, Speaker of the Ontario Parliament, was also appointed Honorary Commissioner.

On March 13, 1900, Madame Raoul Dandurand, of Montreal, was appointed Honorary Lady Commissioner.



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On August 16, 1900, the Honourable Thomas Ballantyne, of Stratford, Ont., was appointed Honorary Commissioner for the term of three months.

On August 25, 1900, the Reverend Father C. P. Choquet, of St. Hyacinthe, Que., was also appointed Honorary Commissioner for the same term.

The several members of the staff were engaged by letter, and payment for their services authorized by Order in Council dated March 13, 1900.

After several meetings the Commissioners came to the conclusion that, taking into consideration the very limited space awarded to Canada, it was impossible to attempt an exhibition by provinces, however desirable it might be to do so, and that the best result would be obtained by combining the superior productions of each province as an exhibit of the capabilities and resources of the Dominion of Canada. The soundness of this decision was afterwards abundantly shown.

In framing the conditions governing Canadian exhibits the Commissioners had to follow to a large extent the rules and regulations of previous exhibitions; in London 1851, Paris 1855, London 1862, Paris 1867, Philadelphia 1876, Paris 1878, and Chicago 1893. These conditions were liberal on the part of the Canadian Government, involving free space, transportation, show cases, installation, power, light, maintenance and representation, with sale or return of goods after the exhibition, with the exception only of specially large and extensive exhibits involving considerable expenditure, part of which was by a special arrangement paid by the exhibitors themselves.

This entailed a large outlay of money, but it was found that, to secure a complete and creditable display in every section, inducements had to be offered to desirable exhibitors, and in some cases much persuasion was found necessary to induce them to take part in the exhibition.

To carry out this work systematically and well, the Dominion was divided into four great sections under the special care of their respective Commissioners, as follows :—

For the Maritime Provinces, A. H. Gillmor, Esq., St. John, N.B.

For the Province of Quebec, J. X. Perrault, Esq., Montreal, Que.

For the Province of Ontario, J. G. Jardine, Esq., Toronto, Ont.

For the Western Provinces, W. D. Scott, Esq., Winnipeg, Man.

Moreover the following named special departmental Commissioners were instructed to complete collections and supervise their shipping and installation in Paris :—

Mineral and geological collection, forestry—Dr. G. M. Dawson, Director of the Geological Survey.

Agricultural and horticultural productions—Dr. Wm. Saunders, Director of Experimental Farms.

Food products—Professor J. W. Robertson, Commissioner of Agriculture and Dairying.

Fish and Game—Major F. F. Gourdeau, Deputy Minister of Marine and Fisheries.

In order to provide intending exhibitors with full information, the following general instructions, rules and regulations, classification and forms of entry, were at once printed and widely circulated in every province of the Dominion :—

#### THE PARIS UNIVERSAL EXHIBITION OF 1900.

This exhibition is attracting world-wide attention and is expected to afford a most complete representation of all countries, products and manufactures of the world. The French authorities have invited all nations to participate, and nearly all have accepted the invitation.

The British Government has appointed a very strong Imperial Commission, with His Royal Highness the Prince of Wales as chairman, and this Commission has invited the co-operation of the British colonies.



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For the purpose of securing and organizing a proper representation of the colonies, there has been named in the Imperial Commission a colonial committee. Canada was, about a year ago, invited to name a representative on this committee, and the government responded by nominating the High Commissioner in London, Lord Strathcona and Mount Royal. Lord Strathcona and Mount Royal was chosen by this committee their chairman, and was appointed the representative of the colonies on the general executive committee of the Imperial Commission; so that Canada occupies a very honourable and advantageous position upon the Imperial Commission, the more so in consequence of the high standing in London of her representative.

The French exhibition authorities deal exclusively with the British Imperial Commission in regard to all matters connected with the participation of each and every part of the British Empire in the exhibition. The colonial committee in London with the object of affording an abundant opportunity to the British Colonies for proper representation, obtaining the privilege of a special building set apart for the occupation of these Colonies. Much correspondence and negotiation has taken place between the Imperial Commission and the French authorities in regard to the concession of a separate building &c. It was not until January 1, 1899, that this was finally granted and the conditions fully determined.

In the course of this correspondence it became evident, that the space thus accorded to the colonies as a whole was such that the portion allotted to Canada would be quite incommensurate with the requirements of the Dominion. On representations made to this effect we have been able, however, to obtain a considerable additional allotment in the space accorded to the British empire over and above that granted us in the special colonial building.

The colonial building finally decided upon, situated on the Trocadero grounds, overlooking the Champ de Mars not far from the great Eiffel Tower, covers 36,000 square feet, of which Canada has been allotted 27,100 square feet. In the Canadian portion of this building, exhibits of all characters and classes can be placed, the space being entirely within the control of the Canadian authorities.

The general plan of the exhibition is to have the exhibits divided by classes in 18 general groups according to their nature, without respect to the country from which they come. Thus, the portion of the Imperial space which has been granted to Canada, apart from the colonial building, is distributed through the different buildings according to the different classes, and in this space the exhibits must appear as exhibits of the British Empire, and cannot be grouped as coming especially from Canada, although each exhibit will be clearly marked with the name and full address of the exhibitor. There are, at the present time, 12,000 square feet of such space granted to Canada by the Imperial Commission.

It will be seen at once that the whole space at the disposal of the Canadian authorities is very limited in proportion to the capabilities of the country, and, therefore, it is evidently of importance that there shall be a careful selection of exhibits such as to insure that only the best representative examples or specimens of each kind shall be sent, and the reputation of Canada's products be maintained or established. It thus becomes necessary that the exhibits shall be so arranged as to be of a national character, illustrative of the products, arts and manufactures of the entire Dominion, without respect to locality of origin.

The government proposes to arrange for some exhibit in certain classes, but even in those must very largely depend on the various local organizations and on private individuals to supply specimens—for instance, in mineral, agricultural, fishery, or forestry exhibits—which will insure a fair representation of all parts of the country. In the classes of manufactured articles the chief dependence must be placed upon the enterprise of private companies and individuals.

It is decided that the government will undertake, at the public expense, the transportation of all exhibits from certain seaports of the Dominion to Paris; and that the unpacking, setting up and care of the exhibits at Paris, and the repacking and return to the shores of the Dominion of such exhibits as are not disposed of at Paris, will also be managed at the public expense.



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The rules and regulations for exhibitors, as well as the full classification of the exhibition, are given in following pages. Further information, if required, can be obtained from the secretary of the Canadian Board of Commissioners, or from the respective members of the Board at their local addresses.

OTTAWA, January 24, 1899.

GENERAL CLASSIFICATION OF EXHIBITS.

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" 2.—Secondary Education . . . . .	1
" 3.—Higher Education. Science Schools . . . . .	2
" 4.—Special Teaching of Fine Art, including Music . . . . .	2
" 5.—Special Agricultural Education . . . . .	3
" 6.—Special Industrial and Commercial Teaching . . . . .	3

*Group II.—Works of Art.*

Class 7.—Paintings. Cartoons. Drawings . . . . .	4
" 8.—Engraving and Lithography . . . . .	4
" 9.—Sculpture and Engraving of Medals and Precious Stones . . . . .	4
" 10.—Architecture . . . . .	4

*Group III.—Appliances and General Processes Relating to Literature, Science and Art.*

Class 11.—Typography. Various Printing Processes . . . . .	5
" 12.—Photography . . . . .	5
" 13.—Books. Musical Publications. Book-binding (Appliances and Products). Newspapers. Posters . . . . .	6
" 14.—Maps and Apparatus for Geography and Cosmography. Topography . . . . .	6
" 15.—Mathematical and Scientific Instruments. Coins and Medals . . . . .	6
" 16.—Medicine and Surgery . . . . .	7
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" 18.—Theatrical Appliances and Plant . . . . .	8

*Group IV.—Mechanical Engineering.*

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" 20.—Various Kinds of Engines . . . . .	10
" 21.—General Machinery . . . . .	10
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" 27.—Various Applications of Electricity . . . . .	13

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" 34.—Aeronautics . . . . .	19

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" 38.—Agronomy (Theory of Agriculture). Agricultural Statistics . . . . .	21
" 39.—Vegetable Food Products . . . . .	21
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## GENERAL REGULATIONS FOR CANADIAN EXHIBITORS.

1. *Opening and Close of Exhibition.*—The exhibition will open on April 15 and close on November 5, 1900.

2. *Applications for Space.*—Forms of application for space must be returned to the Canadian Commission, Department of Agriculture, Ottawa, as early as possible, and in any case not later than June 1, 1899. All applications will be considered by the Commission, but owing to the limited amount of space at their disposal, the Commissioners cannot undertake to allot the whole or any part of the space applied for, their object being to secure the best possible exhibition of Canadian goods in each group. There will be no charge to exhibitors for space.

3. *Date of Reception of Exhibits and Transportation.*—Accepted exhibits from Quebec, Ontario and the West, packed in strong cases, must be delivered, at the exhibitors' expense, at the Customs Warehouse, Montreal, or the Queen's Wharf, Quebec, not later than November 1 next, 1899; and exhibits from the Maritime Provinces at Halifax, N.S., not later than November 15, 1899, to be shipped to Paris by the Canadian Commission free of charge. Exhibitors will be free to ship their goods by other routes not later than January 1, 1900, but at their own personal expense.

4. *Prohibition of Transfer of Space or Substitution of Exhibits.*—No exhibitor will be permitted to transfer his allotment, or to allow any other than his own duly accepted



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exhibits to be placed thereon. All goods must be exhibited in the name of the person or firm who signed the form of application.

5. *Forfeiture of Allotted Space*.—Space not occupied thirty days previous to the opening of the exhibition will be forfeited, and allotted at the discretion of the Commission.

## EXHIBITS.

6. *Position of Exhibits*.—Exhibitors will be required to place their exhibits so as to contribute as much as possible to the general effect. The whole of the arrangements relating to show-cases, signs, notices and all similar matters, will be subject to instructions issued by the Commission.

7. *Maximum Height of Stands, &c.*—No stand, including sign-board, may exceed twelve feet in height, without special permission.

8. *Uniformity of Decoration*.—In order to insure uniformity of decoration and general effect, no exhibitor will be allowed to put up flags, banners, or any other kind of decoration, without special permission from the Commission.

9. *Railing of Exhibits*.—Exhibitors may place railings round their stands, subject to approval. In every instance the railings must be within the space allotted.

10. *Partitions*.—No partitions may be erected between the stands without permission from the Commission, nor anything put up to interfere with the sight of adjoining stands, or to impede the general view in all directions throughout the building.

11. *Sign and Name Boards*.—No sign or name board may be placed in such a manner as to interfere with the vista, or otherwise than parallel with the front of the stand. All signs placed over show cases or stands must be uniform in style. Instructions upon this point will be issued later, and the maximum dimensions will be specified.

12. *Conveyance, Expenses*.—The Commission will bear the cost of transportation of all exhibits from the ports of Montreal, Quebec and Halifax to Paris.

13. *Supervision of Arrival, Installation and Departure of Exhibits*.—In the absence of the exhibitor or his accredited representative, the Commission will free of charge, receive, unpack and install the exhibits in Paris, provide the necessary platforms, counters and other fixtures, and show-cases where it may be decided that the nature of the exhibits requires these. The Commission will also repack and return free of charge to the above-mentioned ports such exhibits as are not disposed of in Paris. Exhibitors are expected to dispose, in Paris, of their exhibits when these have a commercial value; only valuable collections of objects of special character being granted free return transportation.

14. *Pricing Goods*.—Exhibitors are particularly requested to mark their goods with the home selling prices, for the information of the jury and public. Prices, weights and dimensions should be given in French equivalents, as well as in Canadian figures.

15. *Placards and Handbills*.—No printed or written placards, handbills or descriptions may be displayed or distributed without the permission of the Commission. Such permission may be withdrawn at any time.

16. *Dangerous and Unhealthy Exhibits*.—Dangerous articles, especially those of an explosive nature, are excluded. Percussion caps, fireworks, matches, and similar articles will only be accepted in the form of imitations, and on condition that they contain no inflammable matter.

Exhibitors of unhealthy products, or of products which may cause inconvenience, must conform at all times to any measures which may be prescribed by the Commission in the interest of public health and safety.



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Spirits or alcohols, oils and essences, corrosive substances, and such as are liable to injure other exhibits or inconvenience the public, will only be accepted provided they are contained in such vessels of convenient size, shape and material, as may be approved by the Commission.

17. *Unsuitable Exhibits.*—The French executive reserve the right to remove at any time any article which they may deem objectionable or unsuitable for exhibition.

18.—*Opening and Closing Exhibits.*—All show-cases, machinery, and exhibits generally, must be uncovered and properly cleaned each day previous to the hour at which the exhibition is open to the public. They must not be again covered until the closing of the building.

19. *Attendance of Exhibitors.*—All exhibits must be on view on every day on which the exhibition is open. If exhibitors or their representatives do not wish to be in attendance at the exhibition, the Commission will be prepared to undertake the superintendence of the exhibits, but in that event the Commission will not be responsible for any loss, damage, or accident, however occasioned.

20. *Removal of Exhibits.*—No exhibit may be removed before the close of the exhibition without special permission from the French executive. This rule does not apply to articles which exhibitors may be authorized to manufacture in the exhibition.

#### MOTIVE POWER.

21. *Motive power.*—Motive power will be provided free of charge under conditions which will be communicated to the exhibitors.

22. *Foundations and Connections.*—The Commission will provide at their own expense all necessary foundations, connections with the water, gas, electric and steam mains, as well as exhaust pipes, drains, &c., and also provide pulleys (which must be made in halves), or any intermediate gearing that may be necessary to convey power from the main shafting.

23. *Fencing of Machinery.*—All machinery in motion must be railed off in such a way as to protect the public and the workpeople from injury, and to the satisfaction of the Commission.

#### CASES.

24. *Labels.*—All cases containing goods for exhibition must bear special labels, inside as well as outside, which will be supplied to exhibitors in due course.

25. *Unpacking of Cases.*—All cases must be unpacked on arrival. Any cases remaining unpacked fifteen days prior to the opening of the exhibition will be liable to be removed to the custom-house, but neither the French executive nor the Commission will be responsible for any damage which may arise, or any expense which may be incurred in consequence of such removal.

26. *Storage of Empties.*—The Commission will make arrangements for the collection, storage and redelivery of cases. Cases must be distinctly marked by the exhibitor for the purposes of identification.

#### GENERAL.

27. *Freight and Duties.*—Information regarding any reduction of freight charges, duties, &c., will be issued by the Commission from time to time.

28. *Customs Duties. Forwarding of Goods.*—The buildings of the exhibition will be treated as bonded warehouses. Exhibitors not taking advantage of the Commission's



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shipment may transmit their goods through any forwarding agent, or direct to the exhibition, at their own expense. Goods will be dealt with according to the ordinary regulations in force in bonded warehouses by a special customs service connected with the exhibition. Goods for exhibition only will not be liable to duty, but on goods removed from bond the usual rates will have to be paid by the purchaser.

29. *Copyright.*—No work of art or object exhibited in the buildings or grounds may be drawn, copied or reproduced in any form whatsoever without the exhibitor's written permission, countersigned by the French executive.

The French executive may, however, allow general views to be taken and reproduced.

30. *Protection of Patents.*—With regard to inventions, designs, and trade marks, exhibitors will enjoy the rights and protection afforded by the French Law of May 23, 1868, within the periods and under the conditions specified in said law.

31. *Nature of Awards.*—Awards to exhibitors will take the form of diplomas signed by the Minister of Commerce, and by the Commissaire-Général.

These diplomas will consist of :—

- Grand Prize Diplomas.
- Gold Medal Diplomas.
- Silver Medal Diplomas.
- Bronze Medal Diplomas.
- Honourable Mention Diplomas.

32. *Compliance with Instructions.*—Exhibitors, their representatives and workmen, must comply with all instructions issued by the Commission.

33. *Protection of Exhibits.*—The French executive will take all precautions for the protection of exhibits, but neither that executive nor the Commission are to be held responsible for loss or damage however caused. It is left to exhibitors to insure their own goods should they desire to do so.

34. *Liability of Exhibitors.*—Every exhibitor shows at his own risk as respects wear and tear, damage from exposure, breakage, accident in packing, transportation, or from any other cause, and it is a condition that he hold the Commission harmless, and indemnify it against any legal proceedings, whether in the French or the Canadian courts, arising from any injury or accident caused or occasioned by his machinery or other article exhibited by him, or from any action which it may be necessary to take in enforcing compliance with the regulations. The above rule applies to companies and firms as well as to individual exhibitors.

35. *Co-operation of Exhibitors regarding Regulations.*—As the above regulations are laid down solely in the interests of the general body of exhibitors, and to insure the satisfactory working of the Canadian section, the Commission trust that the exhibitors generally will co-operate in carrying them into effect.

36. *Alteration of Regulations.*—These regulations are subject to alteration and amplification from time to time.

37. *Infringement of Regulations.*—The infringement of any of the above regulations, or any of the regulations of the French executive, will subject the exhibitor to the forfeiture of his space, and to the removal of his goods from the building, without any liability attaching to the French executive, or to the Commission or their representative in any way whatsoever, in consequence of such removal. The question whether any such regulations have been infringed, and whether the exhibitor's space has been forfeited, and whether his goods shall be removed, is to be determined according to the sole discretion of the Commission.



In view of these liberal conditions, many applications for space were made beyond the area at the disposal of the Commisssoners, but with care and discrimination 1,750 distinct exhibits were secured, covering almost every class of the whole exhibition.

To transport these goods across the Atlantic a contract was entered into with the Leyland line of steamers to Antwerp, the first shipment taking place in November, and followed fortnightly till the month of April. From Antwerp the exhibits were transported by rail to Paris and delivered at the exhibition grounds, the first shipment arriving early in January, 1900, the land transport having been previously arranged by Mr. J. X. Perrault, who had left Canada in advance to prepare the colonial pavilion for the reception of the exhibits. A section of the unfinished colonial pavilion was secured for the housing of the cases, till the building operations should permit of the setting up of the show cases.

With the arrival of the Hon. Mr. Tarte, Minister of Public Works, as Chief Commissioner, and of the Commissioners, Messrs. Jardine, Scott, Gourdeau, and staff in February and March, a large force was put to work, and the installation was far enough advanced to inaugurate the Canadian section on Her late Majesty's birthday. The balance of Canadian exhibits were shown in the British sections of the forestry, horticultural, carriage, bicycle, marine, ironware, furniture and agricultural implements buildings, and to provide ample space for all our implement manufactures the Commission erected, at Vincennes, a special building measuring 5,000 feet, which, when finished and decorated, was handsome and convenient.

The colonial building itself, as transferred to the Commission, required considerable improvement, that is, electric lighting, gas, water mains and fire protection. The whole of the ceiling had to be decorated, which was done with coloured vellums, the rough floors were covered with linoleum and carpeting, decorative designs, relieved with plush and other drapings, numerous flags and coats of arms of the several provinces of the Dominion were distributed with much taste on the plain walls, columns and gallery, with the result that the Canadian court received favourable comment from all those who visited it.

The ground plan of the colonial pavilion will show at a glance the position of the several departments, office and reception rooms of the commission, as well as the location of the exhibits of the several exhibitors, of whom the following is a complete alphabetical list:—

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The several Provinces of the Dominion are indicated thus : Ont., Ontario ; Que., Quebec ; N. S., Nova Scotia ; N. B., New Brunswick ; P. E. I., Prince Edward Island ; Man., Manitoba ; B. C., British Columbia ; Alta., Alberta ; Assa., Assiniboia ; Atha., Athabasca ; Sask., Saskatchewan.

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## LIST OF AWARDS MADE TO CANADA.

The list of awards conferred by the International jury upon Canadian exhibitors will illustrate better than anything else the success achieved by the Dominion of Canada in its competition with the world. To the British Empire was allotted the nomination of eighty judges and assistant judges divided in the 120 classes of the Exhibition. Of these seven were transferred to the Canadian Commission in the following classes :—

- Class 39.—Field productions, J. X. Perrault.  
Class 40.—Animal food products, M. L'Héritier.  
Class 45.—Fruit and fruit trees, M. Hamilton.  
Class 51.—Products of Hunting, M. Gourdeau.  
Class 63.—Working of mines and quarries, M. Faribault.  
Class 35.—Agricultural implements, M. Geo. Collins Levey.  
Class 58.—Preserved foods, M. Petitjean.

As will be seen in perusing the following prize list, Canadian exhibitors have obtained a large share of the most important awards in every group and class of the Paris Exposition, a thing that was quite unexpected by the manufacturing and mercantile classes of Europe.



## LIST OF DIPLOMAS AWARDED TO CANADIAN EXHIBITORS IN GROUPS 1, 2, 3.

*(Sent to Lord Strathcona and Mount Royal on January 23, 1902.)*

### CLASS 1.—TRAINING OF CHILDREN—PRIMARY EDUCATION—TEACHING OF ADULTS.

- Canada, Government of, Ottawa—Grand Prix Diploma.  
 Canadian Office and School Furniture Co., Preston, Canada—Silver Medal Diploma.  
 Clercs des Saints Viateurs, Joliette, Canada—Honourable Mention Diploma.  
 Ecole Normale Laval, Montreal, Canada—Bronze Medal Diploma.  
 Frères des Ecoles Chrétiennes Montreal, Canada—Silver Medal Diploma.  
 Frères de l'Institution Chretienne, Canada,—Honourable Mention Diploma.  
 Les Frères du Sacré-Cœur au Canada, Coaticook, Canada—Honourable Mention Diploma.  
 Les Sœurs du Bon-Pasteur, Quebec, Canada—Honourable Diploma.  
 Les Sœurs de la Charité, Canada—Honourable Mention Diploma.  
 Les Sœurs de la Presentation de Marie, St. Hyacinthe, Canada—Honourable Mention Diploma.  
 Les Sœurs de Sainte Anne, Lachine, Canada—Honourable Mention Diploma.  
 Manitoba, Provincial Government of, Winnipeg, Canada—Bronze Medal Diploma.  
 Montreal Catholic School Commissioners, Montreal, Canada—Gold Medal Diploma.  
 Montreal Protestant School Commissioners, Montreal, Canada—Gold Medal Diploma.  
 Ontario, Provincial Government of, Toronto, Canada—Grand Prix Diploma.  
 Quebec, Provincial Government of, Quebec, Canada—Grand Prix Diploma.  
 Sœurs de la Congrégation de Notre Dame, Montreal, Canada—Silver Medal Diploma.

### CLASS 2.—SECONDARY EDUCATION OF BOYS ; CLASSICAL SIDE, MODERN SIDE. EDUCATION OF YOUNG GIRLS.

- Canada, Dominion of, Ottawa, Canada—Grand Prix Diploma.

### CLASS 3.—HIGHER EDUCATION—SCIENCE SCHOOLS.

- Canada, The Universities of the Dominion of—Grand Prix Diploma.

### CLASS 4.—SPECIAL TEACHING OF FINE ART, INCLUDING MUSIC.

*(Schools, Colleges and Institutes for teaching Drawing and Music.)*

- Conseil des Arts et Manufactures de la Province de Québec—Silver Medal Diploma.

### CLASS 5.—SPECIAL AGRICULTURAL EDUCATION.

- Guelph School of Agriculture, Canada—Gold Medal Diploma.

### CLASS 6.—SPECIAL INDUSTRIAL AND COMMERCIAL EDUCATION.

- Canada, Dominion of—Gold Medal Diploma.



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## CLASS 7.—OIL PAINTINGS. WATER COLOURS. DRAWINGS. CARTOONS.

- Beau, H., Montreal, Canada—Bronze Medal Diploma.  
 Bruce, W. Blair, Hamilton, Canada—Bronze Medal Diploma.  
 Dubé, Mrs. Montreal, Canada—Bronze Medal Diploma.  
 Harris, Robert, P. R. Canadian, A., 23 Philips Square, Montreal, Canada—Honourable Mention Diploma.  
 MacPherson, Miss, Newfoundland—Bronze Medal Diploma.  
 Suzor-Coté, A., Montreal, Canada—Bronze Medal Diploma.

## CLASS 9.—SCULPTURE.

- Bruce, Mrs. W. Blair, Hamilton, Canada—Bronze Medal Diploma.  
 Hebert, Phillipe, Montreal, Canada—Silver Medal Diploma.  
 Wallis, Miss K. E., Canada—Honourable Mention Diploma.

## CLASS 11.—TYPOGRAPHY. VARIOUS PRINTING PROCESSES.

- Canadian Composing Company, Montreal, Quebec, Canada—Grand Prix Diploma.  
 Montreal Lithographic Co., Canada—Bronze Medal Diploma.  
 W. Stephen, 'Collaborateur', Canadian Composing Co., Canada—Gold Medal Diploma.

## CLASS 12.—PHOTOGRAPHY.

- Cochran, Charles S., St. James St., Hamilton, Ontario, Canada—Silver Medal Diploma.  
 Jackson, John Francis, Barrie, Ontario, Canada—Bronze Medal Diploma.  
 Laprès et Lavergne, Montreal, Canada—Gold Medal Diploma.

## PICTORIAL PHOTOGRAPHY.

- Taylor, Mrs. A., Dunbar, Vancouver, British Columbia—Grand Prix Diploma.  
 Rowley, E. J., 455 Spadina Avenue, Toronto, Ontario, Canada—Gold Medal Diploma.  
 Sherk, Wendell, B., Waterloo, Ontario, Canada—Honourable Mention Diploma.

## CLASS 13.—BOOKS, MUSICAL PUBLICATIONS, BOOKBINDING.

*(Appliances and Products). Newspapers, Posters.*

- Burrows, Toronto, Canada—Honourable Mention Diploma.  
 Granger Brothers, Montreal, Canada—Silver Medal Diploma.  
 LeMoyné de Martigny, Dr., Montreal, Canada—Bronze Medal Diploma.  
 Leveillé, Ed., Montreal, Canada—Silver Medal Diploma.  
 Prat, Madame, (Minnie), Windsor, N.S., Canada—Silver Medal Diploma.  
 Lemieux, R., Collaborateur of Theorot, Canada—Bronze Medal Diploma.  
 Theorot, Camille, Montreal, Canada—Gold Medal, Diploma.

## CLASS 14.—MAPS AND APPARATUS FOR GEOGRAPHY. COSMOGRAPHY. TOPOGRAPHY.

- Canadian Government, Ottawa, Canada. (Collective Exhibit of maps)—Gold Medal Diploma.  
 Deville, Capt., Ottawa, Canada—Gold Medal, Diploma.  
 Taché, E., Quebec, Canada—Silver Medal Diploma.  
 Derozier, E., (Dominion of Canada)—Honourable Mention Diploma.

## CLASS 16.—MEDICINE AND SURGERY.

- Tourangeau, Napoléon, Montreal, Canada—Honourable Mention Diploma.



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## CLASS 17. MUSICAL INSTRUMENTS.

Barthelemes & Co., Toronto, Canada—Bronze Medal Diploma.

Dominion Organ & Piano Co., Ltd., Bowmanville, Ontario, Canada—Silver Medal Diploma.

Knaggs, William, 70 Wood St., Toronto, Ontario, Canada—Bronze Medal Diploma.

Morris Field Rogers Company, Ltd., Listowell, Ont., Canada—Bronze Medal Diploma.

Newcombe & Co., Octavius, (now the Newcombe Piano Co.), Toronto, Ont., Canada—Gold Medal Diploma.

Pratte & Co., L.E.N., Montreal, Quebec, Canada—Silver Medal Diploma.

William, R. S. Jr., Canada—Honourable Mention Diploma.

## LIST OF DIPLOMAS AWARDED TO CANADIAN EXHIBITORS IN GROUPS IV. TO IX.

## CLASS 20.

Ontario Wind Engine and Pump Co., Brantford, Canada—Honourable Mention Diploma.

## CLASS 21.

Dodge Manufacturing Co., Ltd., 74 York St., Toronto, Canada—Bronze Medal Diploma.

McLaren, D. K., Victoria Square, Montreal, Que., Canada—Silver Medal Diploma.

Wilson & Son, C., 67 Esplanade St. East, Toronto, Ont., Canada—Silver Medal Diploma.

## CLASS 22.

Bertram & Sons, John, Canada Tool Works, Dundas, Ont., Canada—Silver Medal Diploma.

Hart Emery Wheel Co., Hamilton, Ont., Canada—Honourable Mention Diploma.

## CLASS 28.

Limehouse Cement Works, Toronto, Canada—Silver Medal Diploma.

Owen Sound Portland Cement Works, Owen Sound, Canada—Silver Medal Diploma.

Queenstown Cement Works, Queenstown, Canada—Silver Medal Diploma.

Thorold Cement Works, Thorold, Canada—Silver Medal Diploma.

## CLASS 29.

Canada, Government of, for Canal Saint Laurent, Ottawa, Canada—Grand Prix Diploma.

Canadian Pacific Railway, Montreal, Canada—Gold Medal Diploma.

Grand Trunk Railway, Montreal, Canada—Gold Medal Diploma.

Robertson, Geo. A., 383 Lansdowne Ave., Montreal, Que., Canada—Bronze Medal Diploma.

## CLASS 30.

Armstrong Manufacturing Co., Ltd., J. B., Guelph, Ont., Canada—Bronze Medal Diploma.

Bain Wagon Co., Ltd., Woodstock, Ont., Canada—Honourable Mention Diploma.



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Brown, Alfred, Canada—Silver Medal Diploma.  
 Canada Carriage Co., Brockville, Ont., Canada—Bronze Medal Diploma.  
 Canada Cycle and Motor Co., Toronto, Canada—Silver Medal Diploma.  
 Clarksburg Wood Rim Co., Clarksburg, Canada—Bronze Medal Diploma.  
 Ledoux & Co., B., Montreal, Canada—Gold Medal Diploma.  
 McLaughlin Carriage Co., Oshawa, Ont., Canada—Silver Medal Diploma.  
 National Cycle and Automobile Co., Toronto, Ont., Canada—Bronze Medal Diploma.  
 Roux, Jean, L'Assomption, Que., Canada—Honourable Mention Diploma.  
 Scott & Son, R., Galt, Ont., Canada—Honourable Mention Diploma.  
 Verret & Co., Que., Canada—Honourable Mention Diploma.

## CLASS 31.

Lamontagne & Co., 304-306 St. Paul St., Montreal, Canada—Silver Medal Diploma.

## CLASS 32.

Canadian Pacific Railway, Montreal, Canada—Silver Medal Diploma.

## CLASS 33.

Peterborough Canoe Co., Ltd., Peterborough, Ont., Canada—Silver Medal Diploma.  
 Pratt, F. W., Gore's Landing, Rice Lake, Ont., Canada—Bronze Medal Diploma.  
 Herald Bros., (Rice Lake Canoe Co.), Gore's Landing, Ont., Canada—Bronze Medal Diploma.

Strickland & Co., Lakefield Canoe Works, Lakefield, Ont., Canada—Silver Medal Diploma.

## CLASS 35.

Cockshut Plow Co., Ltd., Brantford, Ont., Canada—Gold Medal Diploma.  
 Coulthard Scott Co., of Oshawa, Ltd., Oshawa, Ont., Canada—Silver Medal Diploma.

Fleurys' Sons, J., Aurora, Ont., Canada—Silver Medal Diploma.  
 Gerolomy, William A., Tara, Ont., Canada—Silver Medal Diploma.  
 Major Manufacturing Co., Ltd., Montreal, Canada—Bronze Medal Diploma.  
 J. W. Mann Manufacturing Co. Ltd., Brockville, Ont., Canada—Gold Medal Diploma.

Massey, Harris & Co., Toronto, Ont., Canada—Grand Prix Diploma.  
 Maxwell, David & Sons, St. Mary's, Ont., Canada—Gold Medal Diploma.  
 Noxon Company, Ltd., Ingersoll, Ont., Canada—Gold Medal Diploma.  
 Peter Hamilton Manufacturing Co., Peterborough, Ont., Canada—Silver Medal Diploma.

Verity Plow Co., Ltd., Brantford, Ont., Canada—Gold Medal Diploma.  
 Ontario Wind Engine & Pump Co., Peterborough, Ont., Canada—Silver Medal Diploma.

Vessot et Cie, S., Joliette, Que., Canada—Silver Medal Diploma.  
 Collaborateur—Hilliard (Cockshutt Plow Co.)—Silver Medal Diploma.

## CLASS 38.

Canadian Minister of Agriculture—Grand Prix Diploma.  
 Saunders, Dr., Director, Experimental Farms, Ottawa, Canada—Silver Medal Diploma.

## CLASS 39.

British Columbia, Province of, Canada—Gold Medal Diploma.  
 Canada, Dominion of,—Grand Prix Diploma.



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Manitoba, Province of, Canada—Grand Prix Diploma.  
 New Brunswick, Province of, Canada—Gold Medal Diploma.  
 North West Territories, Canada—Gold Medal Diploma.  
 Nova Scotia, Province of, Canada—Grand Prix Diploma.  
 Ontario, Province of, Canada—Grand Prix Diploma.  
 Prince Edward Island, Province of, Canada—Gold Medal Diploma.  
 Quebec, Province of, Canada, (Collective Exhibit)—Grand Prix Diploma.

## CLASS 40.

Canadian Government, (Collective Exhibit of Canadian Agricultural Produce)—Grand Prix Diploma.

Canadian Minister of Agriculture, Ontario—Grand Prix Diploma.  
 Canadian Minister of Agriculture, Quebec—Grand Prix Diploma.

## CLASS 41.

Canada, Dominion of (collective exhibit)—Nine Gold Medal Diplomas.  
 Canadian Experimental Farms—Gold Medal Diploma.  
 Collaborateur—Hay, W. H. (Canadian section)—Silver Medal Diploma.

## CLASS 42.

Canada, Dominion of—Nine Gold Medal Diplomas.

## CLASS 43.

Canadian Minister of Agriculture, Ottawa, Canada—Silver Medal Diploma.  
 James Smart Manf. Co., Ltd., Brockville, Ont., Canada—Bronze Medal Diploma.  
 Maxwell & Sons, David, St. Mary's, Ont., Canada—Bronze Medal Diploma.

## CLASS 44.

Canada, Dominion of, Ottawa, Canada (collective exhibit)—Nine Gold Medal Diplomas.

## CLASS 45.

Abbotsford Fruit Growers' Asso., Canada—Gold Medal Diploma.  
 Archibald, W. C., Wolfville, Nova Scotia, Canada—Bronze Medal Diploma.  
 Aubertin, Alex., Côté St. Paul, Que., Canada—Bronze Medal Diploma.  
 Barr, Chas., Covey Hill, Que., Canada—Honourable Mention Diploma.  
 Beatty, J., Canada—Bronze Medal Diploma.  
 Brenar, J. J., Grimsby, Ont., Canada—Bronze Medal Diploma.  
 British Columbia, Fruit Growers' Asso. of, Canada—Silver Medal Diploma.  
 British Columbia, Province of, Canada—Gold Medal Diploma.  
 Brome County Horticultural Society, Canada—Gold Medal Diploma.  
 Burrel, M., St. Catharines, Ont., Canada—Honourable Mention Diploma.  
 Burt, J. K., Paris, Ont., Canada—Bronze Medal Diploma.  
 Canada, Agricultural Department of—Grand Prix Diploma.  
 Canadian Experimental Farms, Canada—Grand Prix Diploma.  
 Caron, Hon. Judge, L'Islet, Que., Canada—Honourable Mention Diploma.  
 Carwin, H., Goderich, Ont., Canada—Silver Medal Diploma.  
 Caston, G. C. Craigshurst, Ont., Canada—Silver Medal Diploma.  
 Chapais, J. C., St. Denis, Que., Canada—Honourable Mention Diploma.  
 Craig & Sons, Wm., Abbotsford, Que., Canada—Honourable Mention Diploma.  
 Dempsey, J., Fairview, Ont., Canada—Silver Medal Diploma.



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Dunlop, W. W., Outremont, Que., Canada—Bronze Medal Diploma.  
 Dunsmore, W. A., Stratford, Ont., Canada—Bronze Medal Diploma.  
 Edwards, G. B., Covey Hill, Que., Canada—Silver Medal Diploma.  
 Fisk, John M., Abbotsford, Que., Canada—Bronze Medal Diploma.  
 Furse, S., Goderich, Ont., Canada—Bronze Medal Diploma.  
 Goderich, Horticultural Society of, Ont., Canada—Gold Medal Diploma.  
 Grimsby, Horticultural Society of, Canada—Gold Medal Diploma.  
 Guelph, Collège d'Agriculture de, Canada—Honourable Mention Diploma.  
 Hagar, L. L., Grimsby, Ont., Canada—Silver Medal Diploma.  
 Huggard, R. L., Whitby, Ont., Canada, Honourable Mention Diploma.  
 Johnson, George, Canada—Silver Medal Diploma.  
 L'Île d'Orleans, Société d'Horticulture de, Canada—Honourable Mention Diploma.  
 Lington, Canada—Gold Medal Diploma.  
 L'Islet, Société d'Agriculture du Comté de, Canada—Gold Medal Diploma.  
 Miller, James, Paris, Ont., Canada—Bronze Medal Diploma.  
 Missisquoi, Horticultural Society of, Canada—Gold Medal Diploma.  
 Mitchell, J. G., Clarksburg, Ont., Canada—Bronze Medal Diploma.  
 Montreal, Horticultural Society of, Canada—Gold Medal Diploma.  
 New Brunswick, Province of, Canada—Gold Medal Diploma.  
 Newman, C. F., Lachine Rapids, Que., Canada—Bronze Medal Diploma.  
 Nova Scotia, Fruit Growers' Association of, Canada—Gold Medal Diploma.  
 Nova Scotia, Province of, Canada—Grand Prix Diploma.  
 Ontario, Agricultural College of, Canada—Gold Medal Diploma.  
 Ontario, Fruit Growers' Association of, Canada—Gold Medal Diploma.  
 Ontario, Province of, Canada—Grand Prix Diploma.  
 Orr, W. M., Fruitland, Ont., Canada—Silver Medal Diploma.  
 Owen Sound, Horticultural Society of, Canada—Silver Medal Diploma.  
 Patriquin, C., Wolfville, Nova Scotia, Canada—Honourable Mention Diploma.  
 Peart, A. W., Freeman, Ont., Canada—Bronze Medal Diploma.  
 Burlington Horticultural Society, Canada—Gold Medal Diploma.  
 Pettitt, A. J., Winona, Ont., Canada—Silver Medal Diploma.  
 Pettitt, M., Winona, Ont., Canada—Bronze Medal Diploma.  
 Pomological Society of the Province of Quebec, Canada—Grand Prix Diploma.  
 Prince Edward Island, Province of, Canada—Gold Medal Diploma.  
 Quebec, Horticultural Society of, Canada—Silver Medal Diploma.  
 Quebec, Province of, Canada—Grand Prix Diploma.  
 Quebec, Société de, Canada—Silver Medal Diploma.  
 Read, E. H., Port Dalhousie, Ont., Canada—Bronze Medal Diploma.  
 Salkeld, Isaac, Canada—Honourable Mention Diploma.  
 Sanderson, W., Stratford, Ont., Canada—Bronze Medal Diploma.  
 Sherrington, A. E., Walkerton, Ont., Canada—Silver Medal Diploma.  
 Smith, A. M., St. Catharines, Ont., Canada—Silver Medal Diploma.  
 Starr, A. G., Town Plot, Nova Scotia, Canada—Silver Medal Diploma.  
 Starr, G. R., Canada—Silver Medal Diploma.  
 Stratford Horticultural Society—Gold Medal Diploma.  
 Warnock, W. N., Goderich, Ont., Canada—Silver Medal Diploma.  
 Winnipeg, Horticultural Society of, Canada—Silver Medal Diploma.  
 Wood, J. P., Stratford, Ont., Canada—Bronze Medal Diploma.

*Collaborateurs :*

Bigelow, J. W. (Nova Scotia)—Silver Medal Diploma.  
 Verrault, Albert (Société de L'Islet)—Silver Medal Diploma.  
 Allan, Alexis, Department of Agriculture, Canada—Gold Medal Diploma.  
 Dechene, A. (Société de L'Islet)—Silver Medal Diploma.  
 Saunders, W. (Experimental Farms of Canada)—Gold Medal Diploma.  
 Dupuis, August (Société de L'Islet)—Silver Medal Diploma.



## CLASS 49.

Canadian Geological Survey, Ottawa, Canada—Silver Medal Diploma.

*Collaborateur :*

Macoun (Canadian Geological Survey Department)—Bronze Medal Diploma.

## CLASS 50.

Canada, Dominion of, (Collective Exhibit)—23 Grand Prix Diplomas.

William Cane & Sons' Manufacturing Co., Newmarket, Canada—Silver Medal Diploma.

*Collaborateur :*

Macoun, J. M. (Canadian Section)—Silver Medal Diploma.

## CLASS 51.

Star Company, Nova Scotia, Canada—Silver Medal Diploma.

## CLASS 52.

Atkinson, G. E., Portage la Prairie, Man., Canada—Gold Médal Diploma.

Brownell, Franklin, Ottawa, Canada—Bronze Medal Diploma.

Calder, Alex., Winnipeg, Man., Canada—Bronze Medal Diploma.

Canada, Dominion of—Five Grand Prix Diplomas.

Caron, Sir A. P., Ottawa, Canada—Honourable Mention Diploma.

Davies, Sir Louis H., Prince Edward Island, Canada—Gold Medal Diploma.

Dechene, Hon. F. G. M., Minister, Province of Quebec, Canada—Gold Medal Diploma.

Desjardins, Chas. & Co., 1537 St. Catherine St., Montreal, Canada—Gold Medal Diploma.

Egan, Thomas J., Halifax, Nova Scotia, Canada—Gold Medal Diploma.

Gill, Robt., Ottawa, Ont., Canada—Honourable Mention Diploma.

Hudson's Bay Company, Winnipeg, Canada—Grand Prix Diploma.

Menier, Henry, Anticosti, Que., Canada—Gold Medal Diploma.

Miller, Lusel, 238 Yonge St., Toronto, Canada—Silver Medal Diploma.

Paquet, Hon. J., Arthur, Que., Canada—Gold Medal Diploma.

Parker & Co., R., Toronto, Ont., Canada—Bronze Medal Diploma.

Perrett, John, Sherbrooke, Que., Canada—Silver Medal Diploma.

Wilkie, D. R., Toronto, Ont., Canada—Honourable Mention Diploma.

## CLASS 53.

Canadian Department of Marine and Fisheries, Ottawa, Ont.—Five Grand Prix Diplomas.

*Collaborateur :*

Halkett, Prof. Andrew (Canadian Section)—Silver Medal Diploma.



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LIST OF DIPLOMAS AWARDED TO CANADIAN EXHIBITORS IN  
GROUPS X TO XVIII.

## CLASS 55.—APPLIANCES AND PROCESSES USED IN THE MANUFACTURE OF FOOD PRODUCTS.

Vessot et Cie, S., Joliette, Canada—Bronze Medal Diploma.

## CLASS 56.—FARINACEOUS PRODUCTS AND THEIR DERIVATIVES.

Canada, Dominion of, Agricultural Department, Canada—Grand Prix Diploma.

Catelli, C. H., Montreal, Canada—Silver Medal Diploma.

## CLASS 58.—PRESERVED MEAT, FISH, VEGETABLES AND FRUIT.

Canadian Department of Agriculture, Canada—Gold Medal Diploma.

## CLASS 59.—SUGAR AND CONFECTIONERY, CONDIMENTS AND RELISHES.

Canada, Dominion of, Collective Exhibit, Canada—Gold Medal Diploma.

Coombs, H. F., Summerside, St. John, New Brunswick, Canada—Bronze Medal Diploma.

Davis &amp; Co., Toronto, Canada—Silver Medal Diploma.

Simcoe Canning Co., Simcoe, Canada—Silver Medal Diploma.

Small Bros., Dunham, Canada—Bronze Medal Diploma.

W. G. Walker, Ottawa, Ontario, Canada—Bronze Medal Diploma.

Windsor Salt Company, Windsor, Ontario, Canada—Bronze Medal Diploma.

## CLASS 61.—SYRUPS AND LIQUEURS, VARIOUS SPIRITS, COMMERCIAL ALCOHOLS.

Melchers' Gin Spirit Distillery Co., Montreal, Canada—Silver Medal Diploma.

Spalding &amp; Stewart, Perth, Ontario, Canada—Silver Medal Diploma.

## CLASS 62.—VARIOUS BEVERAGES.

Ontario Brewers and Maltsters' Association, Toronto, Canada—Bronze Medal Diploma.

## CLASS 63.—WORKING OF MINES AND QUARRIES.

Albert Manufacturing Company, Hillsborough, New Brunswick, Canada—Silver Medal Diploma.

Asbestos and Asbestic Company, Ltd., Asbestos, Quebec, Canada—Silver Medal Diploma.

Bell's Asbestos Company, Canada—Silver Medal Diploma.

Blackburn Brothers, Ottawa, Ontario, Canada—Bronze Medal Diploma.

British Columbia, Department of Mines of the Province of, Canada—Grand Prix Diploma.

Canada Copper Company, Sudbury, Canada—Gold Medal Diploma.

Canada, Geological Survey Department of, Ottawa, Canada—Grand Prix Diploma.

Canada Iron Furnace Company, Montreal, Canada—Gold Medal Diploma.

Canadian Commission, Ottawa, Canada—Grand Prix Diploma.

Canadian Peat Fuel Company, Toronto, Ontario, Canada—Honourable Mention Diploma.



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- Coleraine Mining Company, Canada—Bronze Medal Diploma.
- Crow's Nest Pass Coal Company, Ltd., Fernie, B.C., Canada—Silver Medal Diploma.
- Diamond Merchants' Company, Canada—Bronze Medal Diploma.
- Dominion Coal Company, Montreal, Canada—Gold Medal Diploma.
- Eustis Mining Company, Eustis, Quebec, Canada—Honourable Mention Diploma.
- Fish, C. E., Newcastle, New Brunswick, Canada—Bronze Medal Diploma.
- Fossil Flour Company, Bass River, Nova Scotia, Canada—Honourable Mention Diploma.
- Imperial Oil Company, Canada—Gold Medal Diploma.
- Jack & Bell, Halifax, Nova Scotia, Canada—Silver Medal Diploma.
- Keystone Graphite Company, Canada—Bronze Medal Diploma.
- Labrador Union Industrielle and Metallurgique du, Quebec, Canada—Silver Medal Diploma.
- Laurentian Granite Company, Montreal, Canada—Honourable Mention Diploma.
- Le Roy Mining Company, Rossland, B.C., Canada—Gold Medal Diploma.
- Mac Machine Company, Belleville, Canada—Bronze Medal Diploma.
- Milne, Coutts & Co., St. George, N.B., Canada—Silver Medal Diploma.
- Milton Pressed Brick Company, Milton, Canada—Bronze Medal Diploma.
- Montreal Gold and Silver Development Company, Canada—Gold Medal Diploma.
- New Vancouver Coal Mining and Land Company, Ltd., Canada—Gold Medal Diploma.
- Nichols Chemical Company, Capeltown, Quebec, Canada—Bronze Medal Diploma.
- Nova Scotia, Department of Mines of the Province of, Canada—Grand Prix Diploma.
- Nova Scotia Steel Company, Ltd., New Glasgow, Canada—Gold Medal Diploma.
- N. Sydney, General Mining Association, Nova Scotia, Canada—Gold Medal Diploma.
- Ontario, Bureau of Mines of the Province of, Canada—Grand Prix Diploma.
- Quebec, Department of Mines of the Province of, Canada—Grand Prix Diploma.
- Union Colliery Company, Canada—Silver Medal Diploma.
- Walker Mining Company, Canada—Silver Medal Diploma.
- Wallingford Brothers, Ottawa, Canada—Silver Medal Diploma.
- Windsor Salt Company, Ltd., Windsor, Ontario, Canada—Silver Medal Diploma.
- Winter & Co., Samuel, Moncton, New Brunswick, Canada—Bronze Medal Diploma.

## CLASS 64. —METALLURGY.

- Canadian Nickel Ores and Smelting, Canada—Gold Medal Diploma.
- Hall Mines Smelter, Nelson, B.C., Canada—Silver Medal Diploma.
- Orford Copper Company, Canada—Gold Medal Diploma.
- Trail Smelter Company, Canada—Silver Medal Diploma.
- Walker Mining Company, Canada—Silver Medal Diploma.

## CLASS 65.—METAL WORKING.

- Chapleau & Sons, G., Canada—Bronze Medal Diploma.
- Lessard & Harris, Montreal, Quebec, Canada—Honourable Mention Diploma.
- McClary Manufacturing Company, London, Ontario, Canada—Bronze Medal Diploma.
- Metallic Roofing Company of Canada, Ltd., Dufferin Street, Toronto, Canada—Silver Medal Diploma.
- Smart Manufacturing Company, Ltd., The James, Brockville, Canada—Silver Medal Diploma.
- Star Manufacturing Company, Halifax, Canada—Gold Medal Diploma.
- Thos. Davidson Manufacturing Company, Ltd., 187 Delisle Street, Montreal, Quebec, Canada—Gold Medal Diploma.
- Whitman & Barnes, St. Catharines, Ontario, Canada—Silver Medal Diploma.



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## CLASS 66.—FIXED DECORATION OF PUBLIC BUILDINGS AND DWELLING HOUSES.

Brunet, Jos., Montreal, Canada—Bronze Medal Diploma.

Canadian Office and School Furniture Company, Preston, Canada—Honourable Mention Diploma.

Edwards & Co., Ltd., W. C., Ottawa, Ontario, Canada—Bronze Medal Diploma.

McClary Manufacturing Co., London, Ontario, Canada—Bronze Medal Diploma.

Milne, Coutts & Co., St. George, N. B., Canada—Bronze Medal Diploma.

Paquette, Jos., 286 Craig Street, Montreal, Quebec, Canada—Silver Medal Diploma.

Rogers, Chas. & Sons Co., Toronto, Canada—Bronze Medal Diploma.

## CLASS 68.—WALL PAPERS AND PAPER HANGINGS.

Watson Poster Company, Ltd., Montreal, Quebec, Canada—Silver Medal Diploma.

## CLASS 69.—HOUSEHOLD AND ART FURNITURE.

Ives, H. R., & Co., Montreal, Canada—Silver Medal Diploma.

May & Co., Samuel, Toronto, Canada—Silver Medal Diploma.

North American Bent Chair Company, Owen Sound, Ontario, Canada—Honourable Mention Diploma.

Preston Furniture Company, Preston, Ontario, Canada—Honourable Mention Diploma.

Rogers, Sons & Co., Charles, Toronto, Ontario, Canada—Bronze Medal Diploma.

Snider, John B., Waterloo, Ontario, Canada—Bronze Medal Diploma.

## CLASS 72.—POTTERY AND PORCELAIN.

Canada, Dominion of (Collective Exhibit).

Contributed by : Albert Manufacturing Co.; Milton Pressed Brick Co., E. North ; Montreal Terra Cotta and Lumber Co., Canada—Silver Medal Diploma.

## CLASS 74.—APPARATUS AND PROCESSES FOR HEATING AND VENTILATION.

Butterworth & Co., Ottawa, Ontario, Canada—Bronze Medal Diploma.

Chapleau & Son, Montreal, Canada—Bronze Medal Diploma.

McClary Manufacturing Company, London, Ontario, Canada—Gold Medal Diploma.

Montreal Gas Company, Montreal, Quebec, Canada—Honourable Mention Diploma.

Record Foundry and Machine Company, Moncton, New Brunswick, Canada—Silver Medal Diploma.

Star Iron Company, 593 Craig Street, Montreal, Quebec, Canada—Bronze Medal Diploma.

## CLASS 78.—APPLIANCES AND PROCESSES USED IN BLEACHING, DYEING, PRINTING, AND FINISHING TEXTILE MATERIALS IN THEIR DIFFERENT STAGES.

Toronto Merchants' Dyeing and Finishing Co., Canada—Bronze Medal Diploma.

## CLASS 79.—APPLIANCES AND PROCESSES USED IN SEWING AND IN MAKING WEARING APPAREL.

Coté, Louis, St. Hyacinthe, Quebec, Canada—Silver Medal Diploma.

Duplessis Pegging and Sewing Machine Company, St. Hyacinthe, Quebec, Canada—Silver Medal Diploma.

Peyry, Jean B., 88 St. Denis Street, Montreal, Quebec, Canada—Bronze Medal Diploma.



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## CLASS 80.

Canadian Coloured Cotton Mills Company (Morrice, Sons & Co., D.) Montreal, Canada—Silver Medal Diploma.

Dominion Cotton Mills Company (Ltd.), Montreal, Quebec, Canada—Gold Medal Diploma.

Montreal Cotton Company, Valleyfield, Quebec, Canada—Grand Prix Diploma.

## CLASS 82.—WOOLLEN YARNS AND FABRICS.

Paton Manufacturing Company, Sherbrooke, Quebec, Canada—Gold Medal Diploma.

Rosamond Woollen Company, Almonte, Ontario, Canada—Silver Medal Diploma.

Willett, S. T., Chambly, Canada—Bronze Medal Diploma.

## CLASS 83.—SILKS AND SILK FABRICS.

Corticelli Silk Company, St. John's, Quebec, Canada—Gold Medal Diploma.

## CLASS 84.—LACE, EMBROIDERY AND TRIMMINGS.

Canada, lace and embroidery, collective exhibit of, contributed by: Beaton, Miss Maggie B., 96 Earl Street, Kingston, Ontario; Gabard, Madam, Octavie, 797 St. Denis Street, Montreal, Quebec; Gabard, Miss Laura, Montreal, Quebec; Barry, Miss, Montreal—Bronze Medal Diploma.

## CLASS 85.—TAILORING, DRESSMAKING AND CLOTHING FOR MEN, WOMEN AND CHILDREN.

Boucher & Mercier, 314 St. Laurent Street, Montreal, Quebec, Canada—Silver Medal Diploma.

Desjardins & Co., Charles, 1,537 St. Catherine Street, Montreal, Quebec—Bronze Medal Diploma.

Paquet, Hon. J. Arthur, Quebec, Canada—Silver Medal Diploma.

## CLASS 86.—VARIOUS TRADES CONNECTED WITH CLOTHING.

Balcer Glove Manufacturing Company, Trois-Rivières, Quebec, Canada—Gold Medal Diploma.

Dominion Corset Company, Quebec, Canada—Silver Medal Diploma.

Dominion Umbrella Factory, 139 St. Catherine Street, Montreal, Quebec, Canada, —Bronze Medal Diploma.

Galibert, Frédéric, 931 St. Catherine Street, Montreal, Quebec—Silver Medal Diploma.

King & Co., Ltd., J. D., Toronto, Ontario, Canada—Gold Medal Diploma.

Lamontagne & Co., H., 304-306 St. Paul Street, Montreal, Canada—Silver Medal Diploma.

Marsh & Co., William A., St. Valier Street, Quebec, Canada—Gold Medal Diploma.

Paquet, Hon. J. A., Quebec, Canada—Gold Medal Diploma.

Slater Shoe Company, Ltd., Montreal, Quebec, Canada—Silver Medal Diploma.

Standard Shirt Company, Ltd., Quebec, Canada—Silver Medal Diploma.

Union Hat Works Company, St. Johns, Quebec, Canada—Silver Medal Diploma.

## CLASS 87.—APPLIED CHEMISTRY AND PHARMACY.

American Dressing Company, Montreal, Quebec, Canada—Bronze Medal Diploma.

Canada Paint Company, Montreal, Quebec, Canada—Bronze Medal Diploma.

Imperial Petroleum Co., Canada—Honourable Mention Diploma.



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Lyman Brothers Company, Ltd., 71 Front Street East, Toronto, Ontario, Canada—Silver Medal Diploma.

McKinnon, Neil, Summerside, Prince Edward Island, Canada—Honourable Mention Diploma.

## CLASS 88.—MANUFACTURE OF PAPER.

Grand-Mère Pulp and Paper Company, Grand-Mère, Canada—Gold Medal Diploma.

Laurentide Pulp Company, Ltd., Grand-Mère, Quebec, Canada—Gold Medal Diploma.

Papier Roland, Compagnie de, 373 St. Paul Street, Montreal, Canada—Grand Prix Diploma.

Pulpe de Chicoutimi, Compagnie de, Chicoutimi, Quebec, Canada—Gold Medal Diploma.

## CLASS 89.—LEATHER AND SKINS.

Bickell & Wickett, Toronto, Ontario, Canada—Silver Medal Diploma.

Breithaupt Leather Company, Berlin, Canada—Bronze Medal Diploma.

Galibert & Sons, C., 929 St. Catherine Street, Montreal, Quebec, Canada—Gold Medal Diploma.

## CLASS 90.—PERFUMERY.

Kottini Malouf Freres, 4 Le Royer Street, Montreal, Quebec, Canada—Honourable Mention Diploma.

Lyman Sons Company, 384 St. Paul Street, Montreal, Quebec, Canada—Silver Medal Diploma.

Savage & Son, Alfred, Montreal, Quebec, Canada—Bronze Medal Diploma.

## CLASS 91.

Canada (collective exhibit of tobacco), Canada—Gold Medal Diploma.

## CLASS 92.—STATIONERY.

Papier, Rolland, Cie de, 373 St. Paul Street, Montreal, Quebec, Canada—Gold Medal Diploma.

Perfect Mucilage Bottle Company, Paris, Ontario, Canada—Bronze Medal Diploma.

## CLASS 93.—CUTLERY.

Bailey Cutlery Company, Ltd., Brantford, Ontario, Canada—Bronze Medal Diploma.

## CLASS 95.—JEWELLERY AND PRECIOUS STONES.

Kent & Sons, Ambrose, Toronto, Canada—Bronze Medal Diploma.

## CLASS 98.—BRUSHES, LEATHER ARTICLES, FANCY ARTICLES, AND BASKET WORK.

Coombs, Henry F., St. John, New Brunswick, Canada—Silver Medal Diploma.

## CLASS 99.—INDIA-RUBBER AND GUTTA-PERCHA INDUSTRIES.

Canadian Rubber Company, Montreal, Quebec, Canada—Gold Medal Diploma.

Lamontagne & Co., Montreal, Canada—Silver Medal Diploma.

## CLASS 100.—TOYS.

Coombs, H. F., New Brunswick, Canada—Bronze Medal Diploma.

Paquet, Hon. J. A., Quebec, Canada—Bronze Medal Diploma.



## CLASS 109.—PROVIDENT INSTITUTIONS.

Independent Order of Foresters, Toronto, Canada—Gold Medal Diploma.

## CLASS 112.—PUBLIC CHARITABLE RELIEF.

Institutions for the Deaf and Dumb, Mile End, Canada—Honourable Mention Diploma.

Ontario, Institutions for the Blind of, Brantford, Canada—Gold Medal Diploma.

Ontario, Institutions for the Deaf and Dumb of, Belleville, Canada—Gold Medal Diploma.

## AWARDS TO 'COLLABORATEURS.'

*(Firms' Assistants, Engineers, Foremen and Workmen.)*

N.B.—The Exhibition Regulations provided that assistants, engineers, foremen and workmen who had co-operated in the production of the exhibits were qualified to receive awards.

## GROUP III.

## LIBERAL ARTS.

## CLASS 14.—MAPS.

Desrosiers, E. (Dominion of Canada)—Honourable Mention Diploma.

Deville, E. (Dominion of Canada)—Gold Medal Diploma.

## GROUP VII.

## AGRICULTURE.

## CLASS 37.—IMPLEMENTS AND PROCESSES USED IN RURAL CULTIVATION.

Hay, W. H. (Canadian Section)—Silver Medal Diploma.

## GROUP IX.

## FORESTRY AND SPORT.

## CLASS 49.—APPLIANCES AND PROCESSES USED IN FORESTRY.

Macoun, (Canadian Geological Survey Department)—Bronze Medal Diploma.

Macoun, J. M. (Canadian Section)—Silver Medal Diploma.

## CLASS 53.—FISHING APPLIANCES.

Gourdeau, Lieut.-Col. (Department of Marine and Fisheries, Canada)—Gold Medal Diploma.

Halkett, Professor Andrew (Canadian Section)—Silver Medal Diploma.



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## GROUP XI.

## MINING AND METALLURGY.

## CLASS 63.—WORKING OF MINES.

Faribault, E. R. (Geological Survey Department, Ottawa, Canada).

Gilpin, Edwin (Mine Department, Nova Scotia, Canada)—Gold Medal Diploma.

Low, A. P. (Geological Survey Department, Ottawa, Canada)—Gold Medal Diploma.

Robertson, William Fleet (Provincial Mineralogist, British Columbia, Canada)—Gold Medal Diploma.

## GROUP XVI.

## SOCIAL ECONOMY.

## CLASS 109.—PROVIDENT INSTITUTIONS.

Breton, P. N. (Independent Order of Foresters, Toronto)—Silver Medal Diploma.

## GROUP I.

## EDUCATION AND INSTRUCTION.

In this department, the first in the general classification of the Universal Exhibition, the Dominion of Canada came prominently forward and attracted great attention. Numerous educationalists made it their special duty to attend daily, ascertaining for themselves how far Canada was advanced in primary, secondary and superior education.

Ample means to assist investigation were placed at their disposal in the several thousands of pupils' books, filled with their daily work, illustrating thoroughly the excellent education given to our younger generation to prepare them for the battle of life. The extensive wall space of the department was well covered with a unique collection of large and remarkably fine photographic views. They showed the splendid architecture of our several universities and other educational buildings, surrounded by handsome grounds and ornamental trees. These institutions of learning, with their thousands of vigorous and intelligent looking students, illustrated to perfection the great progress made under generous expenditure by Canada in providing our boys and girls with an excellent training.

In Classes 1, 2 and 3 (Primary, Secondary and Higher Education) Canada has obtained, at the Paris Exhibition, the highest awards that could be granted by the international jury. For days these scientists made a thorough examination of our educational department. Their investigations must certainly have been most satisfactory to themselves, judging by the three Grand Prizes unanimously given to the collective educational exhibits of the Dominion of Canada for primary, secondary and university education, besides the two other Grand Prizes specially given for primary education to the collective exhibits of Ontario and Quebec.

It is worthy of remark that Canada stands alone in the world with a complete bilingual educational system in French and English, from the primary to the highest education. We are thus the only people who can enjoy the great advantage of a thorough education in the two most widely spread and indispensable languages of modern times. It was a great surprise to the many foreign educationalists to see for themselves, in the thousands of pupils' books exhibited in Paris, how perfectly our boys and girls were being educated in both French and English. The French professors specially, frequently accompanied by large numbers of their pupils, were most agreeably impressed in ascertaining that, after a century and a half since Canada became a British colony, the French language should yet be spoken and written to such perfection.



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In the Canadian catalogue the education department occupies thirty eight pages of closely printed matter, and consists of a full collection of standard books and official reports from each province, together with extensive albums and photographic views of educational buildings, classes and interior arrangements, all being complete and interesting. Thousands of school books were filled with pupils' work, drawings and needle work.

In Class 4 (Special Teaching of Fine Art, including Music) the Quebec Provincial Council of Arts and Manufactures was awarded a silver medal for its interesting collection of pupils' work in architectural, mechanical and free hand drawing, modelling, lithography and other excellent specimens of work from the Montreal, Quebec, Lévis, Sherbrooke and other schools. Professor Meloche's decorative church designs attracted special attention. Taken altogether, this class gave a favourable impression of the good work being performed in the industrial schools of Canada.

Besides the five grand prizes awarded to Canada, as already stated, a gold medal was granted to the Dominion, in class 6, for its special industrial and commercial teaching. Both the Ontario and Quebec industrial and commercial institutions were favourably noticed by the international jury, which took considerable interest in our educational system.

Both the Protestant and Roman Catholic school commissioners of Montreal were given gold medals for their remarkable display of pupils' work. The ladies of the Notre Dame Congregation of Montreal, were justly awarded a silver medal. The Christian School Friars of Montreal and the Canadian Office and Furniture Company of Preston, were equally successful. Numerous other institutions obtained awards of less importance, as shown in the prize list.

## GROUP II.

### WORKS OF ART.

In a European exhibition Canada's works of art were necessarily of a subordinate character, but such as were shown received the commendation of the international jury.

Most prominent amongst our artists stands Hébert, the distinguished author of several of our most important public monuments in Canada. Taking advantage of the Federal government's order for a statue of Her late Majesty to be erected on the parliamentary grounds at Ottawa, and which he had just completed in Paris, Hébert exhibited this splendid piece of bronze statuary in front of the Canadian pavilion on Iéna avenue. The Honourable Alex. MacKenzie's monument and a number of other groups of statuary of less importance by the same artist were considered worthy of a silver medal by the international jury, and the French government has lately crowned Hébert's successful career by bestowing upon him the knighthood of the Legion of Honour.

A valuable collection of some sixty oil paintings contributed mainly by the Canadian artists now in Paris, obtained five bronze medals, awarded to Mrs. Dubé, Miss MacPherson, Messrs. Beau and Blair Bruce. Mrs. Blair Bruce also obtained a bronze medal for her statuary and Miss Wallis an honourable mention. Mr. Herbert Harris was awarded an honourable mention. A bronze medal was awarded to the Montreal Lithographic Co., for a full collection of chromo-lithographic works. The pictures contributed largely to the elegant appearance of the reception room of the commission, where they were admired by a large number of visitors. They were also placed to advantage in other parts of the Canadian pavilion where wall space was available.

## GROUP III.

### APPLIANCES AND GENERAL PROCESSES RELATING TO LITERATURE, SCIENCE AND ART.

In Class 11 (Typography, Various Printing Processes) the Canadian composing machine was the most remarkable success of the Canadian department, for its ingenuity,



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excellent workmanship and low price of production. This piece of excellent machinery was perfected and built in Montreal by the inventor, who is now on the full tide of success. The international jury, after careful examination, awarded the 'Monoline' the highest award, a grand prize. Day after day numerous interested parties were standing by the operator, admiring the splendid work done by this machine. Many orders were given to the agent of the company, though it was not possible to execute them all on account of pressure of business in Canada.

In Class 12 (Photography) Canada had one of the largest and most interesting collections of photographs. The Canadian Pacific and Grand Trunk Railways, the Geological Survey, the Forestry, Agricultural and Education Departments showed excellent illustrations of the scenery, buildings, monuments and resources of the Dominion. Gold medals were awarded to Laprès & Lavergne of Montreal, and E. G. Rowley of Toronto, and the silver medal to C. S. Cochrane of Hamilton.

In Class 13 (Books, Musical Publications, Bookbinding) M. Théoret of Montreal was awarded a gold medal for a valuable collection of Canadian law books, specially prepared and bound for the Paris Exhibition. This collection was certainly unique of its kind, dating from the very first occupation of the country by the French government up to our latest legislation. Full reports of our courts of law, statutes and legal editions, some of them very rare, were much inquired about by gentlemen of the legal profession. A sale was easily made on advantageous terms, amounting to several thousand dollars, on account of the Paris National Library.

Mr. Granger, of Montreal, and his brother were awarded a silver medal for a small, complete and valuable collection of several hundreds of elegantly bound books of French literature and science by the best Canadian authors.

Mr. Ed. Léveillé, of Montreal, whose binding of Mr. Théoret's and Mr. Granger's books was very much admired, contributed also some special ornamental work which obtained for him a silver medal. Miss Minnie S. Pratt, of Windsor, N.S., also obtained a silver medal for fancy amateur binding of elegant design. Dr. F. L. de Martigny's medical publication, *La C inique*, was awarded a bronze medal.

Clause 14 (Maps and Apparatus for Geography, Cosmography and Topography). One of the finest maps in the exhibition grounds was undoubtedly the large map of the Dominion of Canada, specially prepared by order of the Honourable the Minister of Public Works, and executed by Mr. Desrosiers of the department. This valuable map, measuring some 18 feet x 12, indicated with the most accurate and minutest details the latest available information concerning the Dominion of Canada from the Atlantic to the Pacific. Our extensive railways, canals, lakes and rivers, mineral and agricultural lands, cities and towns, telegraphic lines and special productions, were all visible at a glance. When information was required by visitors the great map was surrounded by the public while explanations were given concerning the vast capabilities of the country. For the preparation and execution of this map the Government of Canada was awarded a gold medal, as was Mr. E. Deville, of the Department of the Interior, as collaborateur. Mr. Desrosiers was given an honourable mention. Mr. Etienne Taché, the Deputy Minister of Crown Lands of the province of Quebec, was awarded a silver medal for an excellent map of the province of Quebec.

In Class 16 (Medicine and Surgery), Canada had a single exhibitor, Mr. Napoléon Tourangeau of Montreal, who exhibited a collection of orthopedic apparatus, which was considered worthy of an honourable mention by the international jury.

Class 17 (Musical Instruments) was one of the triumphs of the Canadian section. Our collection of pianos, organs and string instruments was a surprise to the international jury.

Messrs. Octavius Newcombe & Co. of Toronto, who manufacture over a thousand instruments yearly, received a gold medal for their splendid collection of half a dozen pianos.

The Dominion Organ & Piano Co. of Bowmanville obtained a silver medal for a complete and valuable exhibit of pianos and organs. Pratte & Co. of Montreal also obtained a silver medal for a fine make of pianos of which they have been making a speciality. A bronze medal was awarded for two pianos manufactured by Morris,



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Field, Rogers & Co. of Listowell. A. A. Barthelmess & Co. of Toronto also obtained a bronze medal for a remarkable exhibit of piano actions of their manufacture.

In string instruments Wm. Knaggs of Toronto exhibited a grand concert violin and a quartet of viols, after Antonio Stradivarius, consisting of two violins, one viola and one violincello, which were valuable instruments and received the award of a bronze medal.

Mr. R. S. Williams of Toronto, exhibited a fine collection of guitars and other string instruments and received honourable mention.

Mr. O. T. Nokes of Toronto made a special exhibit of valuable drums, consisting of two snare drums, one single head and one double head, two drum pedals, moveable and cymbal beaters, one drum stand and music tray combined, for which he received honourable mention.

#### GROUP IV.

##### MECHANICAL ENGINEERING.

In machinery and machine tools the Canadian exhibits were limited owing to the bulky nature of these articles, the heavy cost of transportation, installation, maintenance, &c. Those, however, that were shown were very creditable to the country. Thus, in Class 20 the Ontario Wind Engine and Pump Co. exhibited one of their well-known wind pumping mills, which was installed in the Park of Vincennes on the border of a large lake and in the immediate neighbourhood of our agricultural implement department. They were awarded an honourable mention.

In Class 21 the firm of D. K. McLaren, of Montreal, exhibited a splendid pyramid of oak tanned leather belting varying in size from 3 feet to 8 inches. This exhibit was one of the most remarkable of its kind on the grounds, and was awarded a silver medal by the international jury for its superior workmanship and quality.

C. Wilson & Son, of Toronto, were equally successful in obtaining a silver medal for their full collection of fine scales, from the smallest confectionery to the 1,000 lbs. platform scale. These scales, which indicate price and weights, were regarded with much interest by visitors who had no previous knowledge of the system.

The exhibit of the Standard wood split pulley, with standardized interchangeable bushing, of the Dodge Manufacturing Co., of Toronto, was equal to any competing collection on the grounds. It is with pride that Canada can boast of possessing the largest wood pulley works in the empire, with sufficient capacity to supply the largest demand. Considerable inquiry was made about these goods, with a probable result of a large increase of business. A medal and diploma were awarded to this exhibit.

In Class 22 (Machine Tools) the firm of John Bertram and Sons, of the Canada Tool Works of Dundas, might have filled the whole pavilion with a full display of their well-known and superior metal and wood working machinery in operation; but they were allowed only two samples of their work. One gap-lathe, twelve feet bed, to swing twenty-four inches over bed and forty inches in gap, with leading screw ten M.M. pitch and longitudinal turning and cross-feed, automatic stop, and with friction counter-shaft, having forward and reversing motion, weight 7,484 lbs. One drilling machine, capacity twenty-five inches diameter, with back-gear, power, lever and hand feed and automatic stop motion, drill head and spindle counter-balanced, with vertical adjustment; weight, 1,985 lbs. These were both considered valuable machines, and gave rise to such a high appreciation of the general work of this firm that a silver medal was awarded by the international jury, though in competition with the largest and best equipped establishments in the world.

#### GROUP VI.

##### CIVIL ENGINEERING.

In an extensive country like Canada, requiring special transportation facilities by land and water, this group should have contained a very large collection of important



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exhibits. In models and plans relating to our public works, carriages and wheelwrights' work, railway plant and mercantile marine, all of which are contained in civil engineering, Canada stands in the front rank of the most progressive countries. But in this group, on account of distance and large expenditure required, we could only bring forward a comparatively modest exhibit.

In class 28 (Building materials) the Limehouse Co. of Toronto, Owen Sound, Queenstown and Thorold Cement works, all obtained silver medals for their well known Portland cement.

In class 29 (Models, Plans and Drawings relating to public works) the greatest success was obtained by Canada. On the large map, specially prepared by order of the Honourable the Minister of Public Works, could be traced the great achievement of the St. Lawrence canals and navigation from the Atlantic to Lake Superior, two thousand miles in the interior of the continent. The fact that ten and twelve thousand tons vessels can reach the port of Montreal, a thousand miles from the seaboard, through the St. Lawrence channel, was forcible evidence of the extensive works that have been carried out to improve the navigation of the river, securing a depth of from 28 to 32 feet.

In view of these and other facts connected with the inland navigation which were brought to the notice of the international jury, there was but one opinion amongst its members, that the Dominion of Canada should be granted the highest award, a Grand Prize, for its unparalleled river navigation improvements.

In railway transportation, both the Grand Trunk and Canadian Pacific Railways rivalled one another in a striking display, well illustrating the magnitude of those main arteries of the trade, commerce and transportation of the Dominion of Canada. Both these companies had full collections of large photographic views, representing some of their most remarkable engineering works, our finest agricultural sections and summer resorts, our lakes and rivers, forest and mountain scenery, fish and game reserves and mining camps. They were very effective in giving to the general public a most favourable impression of life in Canada. The splendid large oil paintings, measuring 8 feet by 4 feet, exhibited by the Canadian Pacific Railway, were specially attractive. The view of their Pacific express train, winding round the steep curves of the mountains, half way between the deep canons and the lofty peaks of the Rocky and Selkirk ranges, was most impressive; nor could any scenery speak more eloquently of the illimitable resources of the North-west than the view of thousands of well conditioned cattle grazing within view of the railway, to be in due course shipped to the English market. And when we explained to the admiring crowds that these fine oxen had been born and raised on the open prairie, without having ever entered a barnyard, our visitors returned home perfectly convinced that nowhere was there a better field than in Canada for stock raising.

The same impression prevailed as to crop growing when we turned their attention to the vast wheat fields. These pictures showed the numerous reapers and binders at work, soon to be followed by the giant threshers and separators which would fill the sacks and wagons, ready to be shipped by rail, or to be stored in the numerous elevators studding the railway tracks of the North-west.

One of the most interesting exhibits of the Canadian Pacific Railway was a large map, measuring 8 feet by 6 feet, illustrating, in vivid colours, their trip around the world, traced on the northern hemisphere. This double-faced plate glass tableau, illuminated interiorly by electric lights, presented a most striking appearance, and was certainly the most ornamental specimen of map work on the grounds. Close by stood a large model of the *Empress of India*, showing our perfect steamship connections with both Japan and Australia. This railway company's exhibit contained a cross-section of one of the C. P. R. parlour cars, gorgeously furnished and lighted, showing the day and night accommodation of our railway system.

Both the Grand Trunk and Canadian Pacific obtained for their remarkable exhibit the high award of a gold medal. When we take into consideration that they had to compete with the most powerful railway companies of the Continent, which had brought into Paris complete trains, this award was the highest that could be expected, and does great credit to the Dominion of Canada.



Class 30 (Carriages and Wheelwrights' work) was well filled by very elegant and much-admired carriages and sleighs from our workshops. The American style of building differs entirely from the Continental in general design, accommodation and weight of the several kinds of vehicles. Our builders did not consider that they could exhibit to advantage their landaus and other large carriages in competition with the most celebrated houses in the world. They confined themselves to the lighter and cheaper victorias, buggies and family traps which are in general use in Canada. Foreigners, unacquainted with the solidity of these vehicles although of exceedingly light construction, were under the impression that they could never stand the wear and tear of every-day usage. They had to be convinced that their power of resistance was due to the high quality of the raw material employed and to their excellent workmanship. The result was a ready sale of all our exhibited carriages, and this might have been duplicated. Many inquiries were made by visitors desiring to open trade with Canada. Some inquiry was made about sleighs, but no definite purchase was made as very little snow, if any, is to be seen during the Paris winters. Of course the general exhibition of carriages was most gorgeous and consisted of thousands of foreign vehicles of all descriptions, especially of French makers, so that in obtaining a gold medal for top phaeton, buggy, polo sleigh and cutter Mr. Ledoux, of Montreal, achieved all that could reasonably be expected.

The McLaughlin Carriage Co., of Oshawa, exhibited three four-wheeled vehicles, which obtained a silver medal for their general excellence. A gentleman's business buggy, a four-passenger trap and a three-spring leather top phaeton formed this much-admired collection, a fine sample of that well-known company's work.

The J. B. Armstrong Manufacturing Co., of Guelph, exhibited also three of their elegant vehicles, comprising an adjustable seat trap for two or four passengers, a four passenger surrey with extension top and a top phaeton carriage. A large demand exists for these carriages, which have been successfully introduced in Canada, Great Britain, the United States and other countries. The firm was awarded a bronze medal.

The Canada Carriage Co., of Brockville, manufacture 55 different styles of vehicles, but exhibited only two samples of their excellent workmanship. A gentleman's road wagon and an elegant four-passenger vehicle of the Aberdeen model promptly found a purchaser. This company also were awarded a bronze medal.

Honourable mentions were granted to the following exhibitors:—Verret & Co., of Quebec, for two comfortable winter vehicles, a family sleigh and a business sleigh, both being generally adopted in Canada; the Bain Wagon Co., of Brantford, for a substantial transportation wagon with cover; R. Scott & Son, of Galt, for wheels, spokes and hubs; Jean Rioux, of Ste. Thérèse, for a collection of unbreakable hubs.

Canada's cycle exhibition attracted considerable attention and inquiry. It consisted of two elegant and extensive stands in the cycle building at Vincennes and carriage building in the Champ de Mars, showing the manufactures of the Canada Cycle and Motor Company, of Toronto. They are manufacturers, wholesalers and exporters of bicycles, bicycle parts, and bicycle sundries, motor vehicles and motor parts. Their exhibit showed complete lines of Massey Harris, Ivanhoe, Wellandvale and Brantford cycles, chain and chainless machines, laminated and single piece wood rims, finished and unfinished parts of bicycles and motor vehicles. They were awarded a silver medal by the international jury for their splendid exhibit, and, if the general opinion of visitors had been acted upon, even a gold medal would not have been thought too high in view of the evident superiority of their work. A large extension of foreign trade has been the practical result of their exhibition in Paris.

The National Cycle and Automobile Co., of Toronto, also exhibited a full set of their valuable Evans and Dodge patent, 4 point ball bearing bicycles, guaranteed to be absolutely oil and dust proof. They were awarded a bronze medal, as were the Clarkburg Woodrim Co., for their bicycle woodrim with patent lock joints, wood guards and chain guards.

In Class 31 (Saddlery and Harness) the firm of H. Lamontagne & Co., of Montreal well known for their excellent work, and who have executed several army contracts for the Canadian and British Governments, to the entire satisfaction of the War Office, exhibited a full collection of Canadian single and double harnesses. The collection was



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very much admired and closely examined by the international jury, which was unanimous in awarding it a silver medal for elegance of design, adaptability and superior workmanship.

In Class 33 (Materials and Plant used in the Mercantile Marine) Canada was placed at considerable disadvantage as it was practically a competition between our canoes and the most powerful Atlantic steamers. Under these circumstances it was an impossibility to obtain grand prizes or gold medals, which were naturally reserved for the great liners and other modern productions of Marine Architecture. But what Canada did obtain was a silver medal for her unequalled canoes, which were unanimously recognized as the best in the world for their elegance, perfect workmanship, excellence of material, lightness of build and low price of production. The consequence has been immediate sales and large orders from foreign countries. At the head of the list stood 'The Peterborough Canoe Co.' and 'Strickland & Co.,' of Lakefield, who obtained silver medals. W. F. Pratt, and Herald Bros., of Gore's Landing, were awarded bronze medals. They were all, without exception, excellent boats, a credit to Canada, and far superior to anything on the grounds.

## GROUP VII.

## AGRICULTURE.

In the vast agglomeration of agricultural products and appliances from every part of the world, exhibited in Paris, the Dominion of Canada stood, unquestionably, in the first rank of the most progressive and successful nations. In all the classes of this most important group Canada was largely represented. Field and dairy productions were certainly most creditable, but, in agricultural implements, our manufacturers distinguished themselves beyond all expectations. It was a daring enterprise for Canada to thus enter into competition with the best known houses in the world. But the result has proved beyond a doubt that our workshops are absolutely up to date, and even leading in the advance of agricultural progress. If ample space had been given, our implement manufacturers alone would have made the largest and most remarkable exhibit of any foreign nation on the grounds. As it was, after reducing by half or more every application for space, Canada occupied in the agricultural building, at the Champ de Mars, a large area entirely taken up by the Massey-Harris exhibit. Then the Canadian Commissioner had to construct a large building at Vincennes, so as to procure 5,000 additional feet of space for the exhibits which could not possibly be accommodated at the Champ de Mars.

The Massey-Harris firm, of Toronto, which is known to control the largest foreign trade and implements manufacturing workshops in the world, was prominent in the Paris fair, for the perfection, workmanship, solidity, elegance and low price of production of its splendid implements. The collection was recognized as without a rival on the exhibition grounds, and was granted the highest award, a grand prize. This collection consisted of self-binding harvesters, reapers, mowers, tedders, hay rakes, cultivators and seeders of various descriptions, all of which were viewed with general admiration, both at Vincennes and at the Champ de Mars.

The large bulk of our implement exhibit was placed in the Park of Vincennes, where a space of some 5,000 feet had been allotted to Canada. The general appearance of this Canadian building, placed in the immediate neighbourhood of the lake and surrounded by a large grove of ornamental trees as a back ground, was most attractive. Drapery, flags, escutcheons and a full decoration of the interior with grain sheaves made the most favourable impression on visitors generally. These elegant surroundings induced many of them to give considerable time to the splendid collection of implements displayed by Canada for their appreciation; and many were the farmers who made a daily call on our manufacturing agents entrusted with the sale of these goods. Extensive orders from every part of the world may be looked for as a consequence of the many inquiries made at this exhibition. The international jury, when called upon to visit the Canadian implement exhibit, expressed their great admiration of the whole collection,



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and were loud in their praise of the great advance made by Canada, especially in the implement department.

In Class 35 (Implements and Processes used in Rural Cultivation) the general exhibition of our ploughs could stand competition with any on the grounds. They presented an array of improved implements unsurpassed for variety, material, adaptability and workmanship. The well known Cockshutt Plough Co., of Brantford, which makes a specialty of these implements, exhibited a full collection of 22 single and gang ploughs of superior design and quality, including a sulky plough, which was very much admired by the grand jury and unanimously awarded a gold medal.

The Verity Plow Co. of Brantford, came in a close competitor with a specialty of six different styles of gang-ploughs, with horse hoes, garden and field cultivators. The jury awarded this company a gold medal for this exhibit.

J. Fleury & Sons, of Aurora, exhibited a valuable collection of six different styles of single, gang and sulky ploughs with a 'Rapid Easy' grinder of various sizes, from four to twenty horse power. The collection was awarded a silver medal.

In close competition to the Massey-Harris firm stood the full collection of the Noxen Co., of Ingersoll, consisting of mowers, reapers and binders, cultivators, seeders, horse hoes and spike, spring and disc harrows. The collection was a great show of itself and reflected credit on Canada. It was in every respect worthy of the gold medal which the international jury awarded.

Equally worthy of an award of a gold medal was the excellent exhibit made by David Maxwell & Sons, of St. Mary's. It consisted of mowers, reapers and binders, horse rake, hay tedders, horse hoe, cultivators and a collection of churns of seven different sizes, forming altogether a most valuable collection and very much admired for its acknowledged very high standard.

The J. W. Mann Manufacturing Co., of Brockville, was also awarded a gold medal for its special display of agricultural implements, consisting of seed drills and broadcast seeders, steel cultivators and harrows, all very valuable implements indeed and much inquired about.

Wm. A. Gerolamy, of Tara, Ont., followed closely with a remarkable collection of farming mills, ensilage and clover cutters and ploughs; all well designed and of an excellent workmanship. They were awarded a silver medal.

The same award was granted to the Peter Hamilton Manufacturing Co., of Peterborough, for their exhibit of spring tooth field cultivators.

S. Vessot & Co., of Joliette, also obtained a silver medal for their flour mill machinery, consisting of three sizes of economical and efficient grinders of wheat, as well as of corn for the feeding of stock. The collection is well known to give excellent results in Canada and found a ready sale and agency in Paris, with the prospect of a good export business.

In Class 38 (Agronomy) the Ottawa Department of Agriculture was very justly granted a grand prize, the highest award in the gift of the international jury. There was but one opinion amongst the members of the international jury and distinguished visitors coming from every part of the globe concerning the superiority of Canada's agricultural exhibit. Much of this result is due to the departmental work of the Director of the Government Experimental Farms, and of the Commissioner of Agriculture, who were both awarded gold medals. The Canadian reports are so replete with valuable information concerning the experimental work of the department that they strongly impressed the international jury with the conviction that Canada occupies a pre-eminent position in the field of agricultural operations.

#### CLASS 39.—VEGETABLE FOOD PRODUCTS.

In no class did Canada show to better advantage than in its collection of vegetable food products. The fine display of our cereals, in the grain and in the straw, their artistic arrangement, producing the best effect, was unquestionably the most admirable on the grounds. It elicited enthusiastic praise from every visitor, as well as from the experienced members of the international jury. The result was most gratifying, as it



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secured the highest awards, including five grand prizes to the Dominion of Canada as a whole, and to the provinces of Ontario, Quebec, Manitoba and Nova Scotia, as a special recognition of their particular excellence, in addition to four gold medals awarded to the provinces of New Brunswick, Prince Edward Island, British Columbia and the North-west Territories for their superior display.

The collection was presented as a whole on a geographical basis, Ontario and Quebec occupying the central stand, the Western Provinces occupying the left, and the Maritime Provinces the right section of the Dominion exhibit, thus showing that Canada, from the Atlantic to the Pacific, has a continuous and fertile belt of agricultural lands and field productions. This general collection of 10,000 samples contributed by some 350 farmers from every section, was unquestionably a most complete and thorough exhibit of the very best varieties of wheat, barley, oats, rye, buckwheat, corn, peas, beans, both in the grain, which were shown in glass jars, and in well trimmed sheaves artistically arranged. They were extensively photographed and published in illustrated periodicals all over the world. Mr. W. H. Hay, who is attached to the Ottawa Experimental Farm, and who had charge of this installation, received a silver medal from the international jury as a complimentary appreciation of his remarkable work and elegance of design. Many inquiries were made about these products by intending purchasers, as well as by many farmers who were anxious to obtain samples for seed. A large quantity of our products were thus given during the exhibition, as well as at the close, and will no doubt give very interesting results, as they are placed in proper hands.

Class 41 (Non-edible Agricultural Products). Interspersed among the food exhibits were the non-edible agricultural products such as clover seed, flax seed, hemp and flax plants, hops and timothy seed. A full collection of prairie and other grasses considerably improved the general appearance of the stands as ornamental accessories. The wool collection and other non-edible products were awarded a gold medal as a collective exhibit by the Department of Agriculture, and another gold medal was awarded to the Director of the Experimental Farms for his contribution of some 4,000 specimens to the whole agricultural collection.

Class 40 (Animal Food Products). The dairy exhibit was one of the greatest triumphs of the Canadian Pavillion. The butter and cheese industries of the Dominion have attained such a colossal development of late years that about 186,000,000 pounds of cheese and 25,000,000 pounds of butter were exported in 1900. To show these products to the best advantage a refrigerating electric plant was installed in the Canadian Pavillion, on the Lynde system, with a large plate glass show case, measuring 10 by 15 feet where the average temperature was kept just one or two degrees over freezing point. In this case were exhibited several cases of butter and boxes of cheese, eggs and fruit, which were kept there for months without alteration, much to the surprise and admiration of the crowds of visitors, who were intensely interested in this very remarkable show. It was a telling object lesson of the results obtained in Canada with cold storage, and the only refrigerating plant to be seen on the Exhibition Grounds. The international jury was greatly interested, took copious notes, and will no doubt report extensively on the progress and up-to-date policy adopted by Canada, to place some of its excellent products on the foreign markets. After a thorough examination of both our cheese and butter they were declared excellent and awarded the very highest prizes, one grand prize to the Dominion of Canada as a whole, and one to each of the provinces of Ontario and Quebec as a special recognition of their unrivalled dairy products.

Class 42 (Useful Insects and their Products). The collective honey exhibit of Canada was undoubtedly the most complete and finest on the grounds. Stored in large glass jars our honey presented a clear, pale amber appearance which was very much admired. Some fifty of these large jars formed a pyramidal stand of imposing aspect. When examined by the international jury the Canadian honey exhibit was awarded a gold medal, the highest award granted to honey, and it was declared that the flavour was equal to the best in the world.

In closing this report of the agricultural group, Canada may be proud of the universal recognition of its eminent position as the best and greatest agricultural country now open to the energies, work and welfare of the intending emigrant.



## GROUP VIII.

## HORTICULTURE AND ARBORICULTURE.

The reputation of Canada as a fruit growing country, has been well known in France from the earliest days, when some of the best fruit trees were imported from France by the French colonists. But to horticulturists of the international jury were scarcely prepared for the collection which Canada exhibited. This collection which occupied 1,300 square feet of space, was prepared with the greatest care, and was the contribution of every province in the Dominion. It consisted of thousands of specimens of preserved and natural fruit; apples, pears, peaches, plums, cherries and other small fruit of the best varieties which were well displayed in ornamental stands and classified by provinces. They were placed under the management of Mr. M. Hamilton and Mr. Allen, who had special charge of the fruit section and did valuable work. Many inquiries were made as to price, and important orders were received for wholesale foreign houses, from all over the continent. The exhibition will result undoubtedly, in extensive commercial transactions so that there is every prospect that the million packages of fruit which are now exported from Canada to the British market, will receive an important accession from the continental demand. In fact during the exhibition Mr. Allen sold and delivered 166,640 bushel boxes of apples, distributed in Germany, Norway, Sweden, Egypt, France, Belgium, Austria, Hungary and Great Britain.

The experience obtained during the Paris Exposition, is a very valuable one. The 500 bushel boxes of the crop of 1899, contained 100 varieties of the best keeping apples. Kept in cold storage in Montreal, at a temperature of 32° Fahrenheit, they were shipped in 1900 via Liverpool and London and arrived in Paris during the summer months, with 80 to 90 per cent of the fruit in sound condition.

On October 3, 1900, the first shipment of 60 cases of fresh fruit was received, consisting of apples, pears and peaches, which when exhibited, created a lively interest amongst fruit growers. Never before had Canada attempted such a grand display. It was a marvellous sight to see a collection of peaches in their full bloom, especially the Lord Palmerston variety, exhibited to perfection at a distance of over 3,000 miles. There was, of course, considerable loss on the peach shipment, but the other fruit was in excellent keeping condition and remained so for the balance of the Exhibition, winning grand prizes and gold medals during the several competitions which took place.

On October 20, a second shipment arrived, to compete with France, Germany, the United States, Austria and Russia, in fruits for export. On this occasion the fruit was packed in barrels, boxes and baskets, showing the various methods of packing for foreign markets. A grand prize, the highest award was granted to the Dominion of Canada for its display of full collections of large, well formed and beautifully coloured fruit, true to name and suited to climate of each province. Mr. McD. Allen, of Goderich, in charge of the fruit department, has come to the conclusion that Canadian apples, well selected, packed in boxes, wrapped in paper, and bedded in excelsior packing, bottom, sides, ends and tops of cases, would sell at the highest prices in the European market in any quantity. Under these conditions, apples are more profitable than any other crop on the farm in Canada, and Europe will take it all, as well as pears, on account of the exceptionally fine flavour of our fruits.

Great improvements have been effected in the form of the packages used for marketing fruit, which are now made as convenient and attractive as possible. For home market, flat handled baskets are mostly used, holding 6, 8 or 12 quarts, while for special handsome fruit for export, boxes are used, one foot wide and two feet long, and from 4½ to 6 inches deep, according to the size of the fruit, which is packed two deep, wrapped in tissue paper.

Cherries, strawberries, raspberries, currents and gooseberries are sent forward in packages of from one to five pounds; fancy apples, also plums, peaches and pears, from five pounds to twenty pounds. Experience has shown that such packages are most convenient and acceptable to the public.



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The cold storage for transporting tender fruits, is a great saving, permitting of the sending of fruit by freight, which would otherwise have to be forwarded by the more expensive express routes.

All the large cities of the Dominion are centres to which the fruits of various kinds are sent, and from these they are distributed to every town, village and hamlet, so that they can be procured at low rates and in convenient sized packages, by all classes of consumers.

In the Canadian pavilion also, the international jury was very much surprised and interested, to find absolutely perfect fruit of last year's crop, exhibited in the cold storage show case erected by Canada. This practical demonstration of our ability to transport natural fruit to the Paris market all the year round from a distance of over three thousand miles, in perfect condition, was undoubtedly, from a business point of view, the most striking feature of the whole Horticultural Exhibition. This object lesson, more than anything else perhaps, created a strong impression that the people of Canada employed the best methods in carrying on the fruit business.

Close by stood an imposing trophy of our agricultural and horticultural productions. There also in some 1,500 handsome glass jars was a collection of the finest preserved fruit of all kinds.

As a consequence of these exhibits the Dominion obtained from the international jury the highest award, a grand prize, for its fruit display and methods of preservation, in addition to the 25 gold medals awarded during the several monthly fruit exhibitions which took place during the summer. These circumstances seemed to have established Canada's reputation as one of the leading fruit exporting countries.

## GROUP IX.

## FOREST, SPORT, FISHING, GATHERING WILD CROPS.

From time immemorial Canada has always been looked upon as a country of illimitable timber, whose forest productions were extensive enough to supply the foreign demand of the world. At every previous international exhibition since 1855 in Paris, the highest awards were always taken by Canada. In 1900 there was but one opinion, that in the forestry building the Dominion exhibit was the most complete and interesting collection from a commercial and practical point of view, and altogether worthy of the grand prize which was unanimously awarded by the international jury.

It consisted of 45 large sections of trees, some of them 8 feet in diameter, blocks and squares, hardwood specialties, indurated fibreware, 30 polished panels and unpolished boards, flooring and wainscoting, shingles and tan bark, railway ties, pulp wood, veneers, cigar boxes, kitchen woodenware, sash and door stock, baskets, boxes and packages for fruit, hubs, axles and spokes for carriages, spools, bobbins and turned wooden boxes, chair and table stock, cloth boards, oak and hickory handles, whiffletrees, elm and ash barrel staves, hoops and heading woodenware, pails and tubs and rustic furniture.

The samples collected from every province of the Dominion constituted the most valuable commercial collection that could possibly be gathered together for exhibition. But as an educator of the daily operations of our timber country, nothing could be more effective than the eighty-seven large photographic views illustrating the life and work of of the lumberman's camp and saw mill. Eighty other photographs of the various trees of Canada, elegantly framed in their own wood, presented a most scientific and much admired collection of our forest wealth.

The whole exhibit was certainly most creditable to the Dominion of Canada and to Mr. Macoun, who had charge of Classes 49 and 50, and who was awarded a silver medal by the international jury as a recognition of his services.

In Class 52 (Products of Hunting and Shooting) Canada had the finest exhibition on the grounds, and obtained the highest award, a grand prize. The Quebec exhibition made in New York in 1899, which so greatly surprised American sportsmen, largely contributed to the still more extensive and complete display made in the Canadian pavilion of the Paris exhibition. There stood at the Canadian entrance on the Iena



avenue, to welcome the sportsmen of the world, a full sized moose, surrounded by a full collection of the fish and game of the Dominion. From the province of Quebec, contributed mainly by the Hon. G. M. Dechêne, Minister of Agriculture, were eighteen fine heads of buffalo, wapiti, mountain sheep and cariboo and deer, besides bears, wolves and all other denizens of the Canadian forests. The international jury awarded this exhibition a gold medal.

The Hudson Bay company, the largest fur dealers in the world, were awarded a grand prize for their very fine exhibition of musk ox, black, brown and cinnamon bear, and many other furs, common to the country and others of rarer quality.

Mr. Menier, of Anticosti, also exhibited a fine collection of red, silver and cross foxes and other furs, for which he was awarded a gold medal. The other gold medal awards, in Class 52, were to Hon. J. Arthur Paquet, of Quebec, Chas. Desjardins & Co., of Montreal, G. F. Atkinson, of Portage la Prairie, and Col. J. J. Egan, of Halifax. Mr. G. E. Atkinson, taxidermist, of Portage la Prairie, taking advantage of the innumerable birds of all descriptions which migrate through the prairie regions, contributed several hundred specimens. They found ready purchasers in Paris amongst the many sportsmen, amateurs and scientific men, anxious to enrich their own collections by the addition of the specimens coming from Canada. Mr. L. E. Miller, of Toronto, obtained a silver medal for his fur exhibit.

Messrs. Alexander Calder, of Winnipeg, John Perrett, of Sherbrooke, Walkeham, of Halifax, also obtained silver medals for their very fine contribution of water birds, perching, climbing and ground birds. Bronze medals and honourable mentions were granted to contributors of less importance.

In Class 53 (Fishing Appliances, Tackle and Products, Fish Culture), the Dominion of Canada was granted the highest award for the extensive display made by the Marine and Fisheries department. A large family of a dozen seals, ranging from babyhood to the fullest size, gave a fair impression of the wealth to be found on the ice floes of our northern regions. Both on the seal grounds of the northern Pacific, as well as on the north Atlantic, thousands of our fishermen are busily engaged in gathering their yearly crop.

From the banks of Newfoundland and the shores of Labrador were splendid specimens of our codfish, mackerel and halibut. Salmon and lobster specimens of great size impressed the visiting multitudes with the conviction that the Canadian Atlantic and Pacific canneries with their immense production were fully able to supply the foreign markets of the world with any amount of this food.

As to our innumerable lake and river trout and other fishes, one hundred well prepared specimens told of the sport which was enjoyed by the many fishing clubs, which have secured from the several provincial governments, valuable reserve grounds for the sport in Canada.

The fish and game exhibit in Paris had a double object. First to show to the world the wealth of our fish and game grounds, and secondly, to induce the foreign sportsmen to take advantage of the splendid reserves to be found in the wilds of Canada. This double object has certainly been obtained, and a gold medal was awarded to the Honourable the Minister of Marine and Fisheries, and his Deputy, and a silver medal to Professor Halkett, who was in special charge of the section.

## GROUP X.

### FOOD PRODUCTS.

Class 56 (Farinaceous Products and their Derivatives). In this Class, the Dominion of Canada obtained the highest award. Exhibits of flour manufactured from Manitoba hard and other wheats were made by the Lake of the Woods Milling Co., of Keewatin, the Hudson Bay Co., James Innes, Souris; Jacob Steinmiller, and Vogan, Son & Co., of Walkerton. Rolled oats, flaked wheat, oats and oatmeal were also exhibited by the Brackman-Ker Milling Co., of Victoria, and Martin Bros. of Mount



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Forest. All of these were closely examined by the international jury and declared of superior extra quality, and received a grand prize, the highest award.

To give a practical aspect to this exhibition of our food products, the exhibits were not only contained in large glass jars, but in standard barrels and sacks, fully branded, showing to the men in the trade, the attractive way in which the packages were prepared for exportation to the foreign markets. Taken altogether the breadstuff stand of the Canadian pavilion was a credit to the country and to the several exhibitors who contributed so largely to its excellence.

In Class 55 (Appliances and Processes used in the Manufacture of Food Products) we could have exhibited the most modern and improved milling machinery, if the great distance, cost of transportation and installation had not prevented the Canadian Commission from making a practical display. All the Commission could allow, was a small sized collection of portable grain and feed grinders for both farmers' use and large flour mills, which obtained bronze and silver medals from the international jury. A strong house in Paris has assumed the agency of these machines manufactured by S. Vessot & Co., of Joliette, with every prospect of doing a large business.

The house of C. H. Catelli, of Montreal, exhibited a complete collection of macaroni and Italian pastes of various kinds. It is well known that our hard Manitoba wheat is specially adapted to the production of these superior Italian pastes and are largely exported abroad for this trade. The international jury, after examining Mr. Catelli's exhibit, awarded him a silver medal, a high honour considering the competition of Italy, France and other foreign countries.

In Class 58 (Preserved Meat, Fish, Vegetables and Fruit) the Dominion of Canada made a complete exhibit, which was awarded a gold medal.

In this class the Simcoe Canning Co., and the William Davies Co., of Toronto, made a remarkably comprehensive and much admired exhibit of canned goods, and were awarded silver medals by the international jury. It is no exaggeration to say that Canada now enjoys the highest reputation on the English market and especially at the London War Office, for the excellence of its food products. In fact the South African expedition has been largely supplied by Canadian canned goods, and the War Office reports have been most satisfactory in every respect.

The preserved codfish, lobsters and salmon were the great attraction in this class. Wurzburg and Co., of Vancouver, had a fine exhibit of crabs, packed in half pound cans, containing only the white meat which lies in the small body cells, and the meat of legs and claws taken out whole. The salmon exhibit was packed in pound flat cans, of a quality equal to the best on the Fraser river.

Mr. Ludw. Wurzburg, of Halifax, had a very attractive exhibit of lobsters, preserved in patent glass jars, in the same way in which lobsters are packed in the cans. These glass jars, hermetically closed by atmospheric pressure, being free of all metallic solder, and allowing the purchaser to see for himself the fresh appearance and cleanliness of the meat, were much appreciated by the trade, and large orders were given in consequence.

Codfish, canned, kippered and smoked herrings were also exhibited by Henry F. Coombs of St. John, Chas. Robin, Collas & Co., of Paspébiac, and other parties, the whole of which formed a most valuable collection which largely contributed to the gold medal obtained by the Dominion for its preserved fish.

In preserved fruit and vegetables, Canada had a large collection of valuable exhibits, the Simcoe Canning Co. leading with many varieties of fruits and vegetables, which, with an exhibit of evaporated apples formed a complete collection. The Kelowna Shipping Co. exhibited a fine specimen box of Agen and Italian prunes from British Columbia.

In Class 59 (Sugar and Confectionery, Condiments and Relishes) Canada obtained a gold medal for its collective exhibit. The collection of maple syrup and sugar was a surprise to the visitors who had not the remotest idea of the making of sugar from the maple tree. Samples were constantly at hand in small pieces so that people could taste it. A large stand was covered with some fifty large glass jars, filled with amber coloured syrups. Never before had such an exhibit been made in Paris, and the



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Canadian pavilion was the only place on the grounds where maple sugar and syrup could be seen. The Minister of Agriculture of the Province of Quebec was the principal contributor to this splendid collection, almost exclusively the product of the province.

In confectionery, W. J. Walker, of Ottawa, and Henry F. Coombs, of St. John, exhibited assorted creams, bon-bons, chocolates and other fancy confectionery for which special bronze medals were awarded by the international jury.

In class 61 (Syrups and Liqueurs ; Various Spirits Commercial Alcohols) Canada obtained two silver medals, one for Melchers Gin Spirit Distillery Co., of Montreal, the other for Spalding and Stuart's Scotch Whisky "Old Perth", and "Mountain Dew". Other exhibitors in this class did not arrive in time to be fairly appreciated, and as a consequence could not fairly enter in competition with the other exhibitors.

## GROUP XI.

### MINING METALLURGY.

Previous to the Paris Universal Exhibition there was a general impression abroad that Canada was above all a great timber and agricultural country, with no great pretensions to mineral or metallurgical prominence. Years ago this impression was perhaps well founded, but of late the Dominion has developed in a most marvellous manner. After going through the primary period of forestry and agriculture, Canada has rapidly advanced to the industrial stage of its existence, and has now arrived at the mining and metallurgical era, the crowning industry of the most progressive nations of the new century.

The Canadian department of Mining and Metallurgy was a great revelation to the industrial world, so ignorant generally of our unbounded resources. To-day the Dominion is looked upon, by the other nations, as the coming young giant who, in the near future, will contest their supremacy in the markets of the world. No better or more complete demonstration of our great mining wealth could be made than by the splendid specimens so handsomely exhibited in Paris by the Geological Survey. Not caring for purely scientific display only, the Director, Dr. Dawson, took special care that, as constituted and finally installed, his exhibit should offer by far the largest and most important display ever made of Canada's mineral products. In the opinion of the numerous visiting foreign experts, it was not only the largest but the best arranged and most instructive series of economic minerals on the grounds.

Covering most of the northern half of the North American Continent, Canada is traversed by mountain ranges, from the Labrador regions to the Pacific coast, in which are innumerable deposits of minerals to be found. Large specimens weighing several tons each of coal from the Maritime Provinces were exhibited to the admiring visitors, and much inquired about by the people in the trade. Close by stood other large specimens of British Columbia Coal representing some fifty thousand square miles of coal regions, worth untold millions of money.

In the immediate neighbourhood of the coal exhibit, was our great collection of gold nuggets and other specimens, taken from the Klondike, Kootenay and other mines, together with a sixteen foot column of auriferous gravel, illustrating the Bonanza creek stratification of the soil, which thousands of much interested visitors gazed upon with evident surprise and outspoken admiration.

As to our nickel exhibit, it was certainly without a rival on the exhibition grounds. It was shown in every stage of preparation, from the rough ore to the manufactured article, which consisted of an elegant gate and railing, sixteen feet long, of solid polished pure nickel metal, estimated to cost over five thousand dollars.

Twelve hundred and twenty-three separate exhibits of silver ores, copper, iron, asbestos, mica, mineral oils, quartz, building stone, cement and other specimens from every province in the Dominion formed a complete and admirable collection of the mineral wealth of Canada. Large and much admired transparent photographic views illustrated the mining camps of the Rocky Mountains and other regions. The geological maps of the survey, which, under Sir William Logan, always obtained the highest



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awards at previous international exhibitions, maintained their reputation for scientific work and value. They were closely examined by scientific schools and associations, which made it their duty to frequently visit the Canadian pavillon as the most practical school of mines on the grounds. Mr. Faribault, who was in charge of the installation of the section, was indefatigable in giving full information to visitors and to the international jury, during his presence in Paris. He was succeeded by Messrs. Low and Stuart, who also did excellent service, fully appreciated by the Canadian Commission.

Class 63 (Working of Mines and Quarries). As the result of our grand mineral exhibit, which occupied 3,550 square feet of space in the Canadian Pavilion, six of the highest awards were granted to the Dominion of Canada, as follows: The Canadian Commission, The Geological Survey, The Ontario Mining Bureau, The Quebec Mining Department, The Nova Scotia Mining Department, and the British Columbia Mining Department. Each of these obtained grand prizes for the excellence of their contributions.

Eight gold medals were also awarded to the Canadian Copper Co., the Oxford Co., the Canadian Iron Furnace Co., the General Mining Association of Sydney, the Dominion Coal Co. of Montreal, the Montreal Gold and Silver Development Co., the West LeRoi Mining Co. of Rossland, the Nova Scotia Steel Co., and the Imperial Oil Co. All these companies had full representations of their valuable products. The Imperial Oil Co. especially had a full collection of crude petroleum, illuminating and lubricating oils and waxes, paraffine, benzine, naphtha, &c.

Silver medals were granted the Albert Manufacturing Co., the Asbestos and Asbestic Co., the Crow's Nest Pass Coal Co., the Union Industrielle du Canada, the Windsor Salt Co., Bell's Asbestos Co., Jack & Bell, Halifax, the Union Colliery Co. of B.C., the Walker Mining Co., Wallingford Bros., Ottawa, and Milne, Coutts & Co. of St. George.

A large number of bronze medals and honourable mentions were also awarded to other valuable but less important exhibits to be found in the official prize list. As collaborateurs, Messrs. Faribault and A. P. Low of the Geological Survey, Ottawa, Aubray White of Toronto, Mr. Edwin Gilpin of Halifax, and Mr. W. Fleet Robertson of Victoria were awarded gold medals for their services.

Numerous inquiries were made from every part of the world about our mining resources, and it is to be hoped that a large investment of capital and increase of immigration will be the results of the splendid display made by Canada at the Paris Exhibition. The special catalogue and other mining publications widely circulated by Canada largely contributed in giving information concerning the mineral resources of every province in the Dominion.

In Class 64 (Metallurgy) the Canadian Nickel Ore and Smelting Co. was awarded a gold medal for its exceptionally fine and complete exhibit. The same award was granted to the Oxford Copper Co. Silver medals were given to the Hull Mines Smelter of Nelson, the Walker Mining Co. and Trail Smelter Co.

In Class 65 (Metal Working) Canada could have made a better display had it not been that manufacturers were so busy filling pressing orders that it was very difficult to induce them to contribute to the Paris Exhibition. A few of our most prominent firms were induced, however, to take part in the Canadian section with most satisfactory results.

The Thomas Davidson Manufacturing Co. of Montreal spared no trouble in making a display of enamelled steel wares, embossed and japanned goods. An extensive show case, measuring eighteen feet by seven, was completely filled with an attractive and ornamental collection of some thousand different articles of kitchen ware, decorated household and table furniture, jardinières, tea, coffee and dinner sets of elegant patterns. A full collection of ornamental japanned boxes for various trades and of all sizes and designs also attracted much attention. The whole exhibit will probably create a demand for these goods, as the international jury was both surprised and satisfied with the whole exhibit, which for variety and excellence of design and workmanship had no superior on the ground. The international jury promptly awarded a gold medal to the Thomas Davidson Manufacturing Co. as a recognition of the superiority of this creditable display of Canada's progress in metal working.



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The Star Manufacturing Co. of Halifax was equally successful in exhibiting their gold, silver and steel skates of all sizes and designs. This elegant exhibit was placed as one of the centre-pieces of the Canadian pavilion. The star, shaped case, standing on a well designed pedestal of mahogany, was certainly one of the most ornamental accessories of the Canadian pavilion, and attracted every visitor's attention.

The Metal Roofing Co. of Toronto had two very fine specimens of their metal work, an ornamental portico, in the Canadian pavilion, and three large panels in the main building, both of which were considered of superior workmanship and design by the international jury, who awarded them a silver medal.

A silver medal was awarded the James Smart Manufacturing Co. of Brockville, who exhibited a fine collection of Canadian hatchets, axes and hammers, which were a surprise and an educator to the average continental workman, who still uses the tools of a century ago. A claw hammer, for instance, could not be found on the whole continent probably, and as to the finish of tools, generally, they could not compare at all with the elegant, well kept implements of the Canadian workman. A silver medal was also awarded to Messrs. Whitman & Barnes of St. Catharines, who had also a full case of forge tools, reapers and mowers, root and other cutters, which were much admired for their superior finish and quality. Bronze medals and honourable mentions were granted for other exhibits of less importance, as seen in the official prize list.

## GROUP XII.

### DECORATION AND FURNITURE OF PUBLIC BUILDINGS AND OF DWELLING HOUSES.

The furniture industry of Canada has now been so developed that not only is the local demand supplied with a better class of goods, but the foreign trade is absorbing the whole production of some of our larger factories. It is to be regretted that the Furniture Manufacturers Association did not fulfil their first engagement, to exhibit in Paris a full line of their stock, for they would have done credit to an important industry, especially adapted to our great timber resources and extensive water powers. No country in the world is better situated to produce an excellent article at the lowest possible price. This trade is likely to be largely extended in foreign markets, and the Paris Exhibition of 1900 has afforded a valuable advertisement for it.

A few manufacturers contributed to make a fair exhibition of household furniture, which attracted great attention, and could have been sold ten times over. Those who exhibited were Messrs. Charles Rogers & Sons, of Toronto, the North American Bent Chair Co., of Owen Sound, and Messrs. Ives & Co., of Montreal, who produced a dozen of the most elegant brass single and double bedsteads that could be found on the grounds. As a result of their exhibit, numerous inquiries have been received about these goods from several parts of the world, and important orders will probably spring from their exhibition at Paris.

The Preston Furniture Co., and Mr. John B. Snider, of Waterloo, both contributed a collection of office desks. These could have been sold several times over.

Messrs. Samuel May & Co., of Toronto, exhibited in the main building a carved oak English billiard table, with complete fittings, which attracted considerable attention. Mr. May was awarded a silver medal, as well as Messrs. Ives & Co. Bronze medals were granted to the other exhibitors, notwithstanding the fact that they were competing with the most costly and finest upholstered furniture in the world. This seemed to be a somewhat unfair position, but the awards given were certainly the highest that could be expected for furniture designed to be sold at moderate figures, when in competition with a different class.

In Class 66 (Fixed Decoration of Public Buildings and Dwelling Houses), Messrs. W. C. Edwards & Co., of Ottawa, and Mr. Joseph Paquet, of Montreal, made a complete and elegant show of doors, blinds, sashes and ornamental joinery. Show boards of mouldings and turnings, window frames, stair rails and newel posts, parquetry flooring and borders, showed to perfection the excellence of the materials employed and the



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superiority of their workmanship. The whole display did credit to Canada. They were awarded silver and bronze medals from the international jury.

In Class 66 (Wall Paper and Papers Hangings), the firm of Watson, Foster, of Montreal, made an excellent display of their goods. Their showcase, one of the largest of the Canadian pavilion, was also one of the most attractive. Visitors seemed to be surprised at Canada producing such high class articles. But when it was explained to the international jury that this firm had recently built one of the most extensive wall paper factories in America, fitted with all the most modern machinery and appliances, and that the inherited artistic taste of the French Canadian workman, together with the facilities afforded for paper making by the natural resources of Canada, they came to the conclusion that Canada should be able presently to supply a large proportion of the foreign market demand. This is being already done to some extent. Messrs. Foster, Watson's display obtained a silver medal, the highest award that could be obtained for the commercial class of goods exhibited by this firm.

The Diamond Glass Co., of Montreal, supplied an exhibit of glassware, including table service, glass jars, flasks, and a thousand different articles of elegant design and finish, suited to the Canadian demand. Twenty years ago the company started work with a few thousand dollars capital, and it now has developed into a large and important company, supplying the market with the cheapest and best goods required for home consumption.

In Class 74 (Apparatus and Processes for Heating and Ventilation), the Dominion was expected to make an important exhibit, and the numerous visitors at the Canadian pavilion admitted that this had been done. The exhibit was a complete collection of heating and cooking appliances. The leader of this excellent exhibit was the McCleary Manufacturing Co., of London, with some fifty different styles of their hall, parlour and kitchen coal, wood and oil stoves and ranges of latest improvements and styles. They presented a good appearance and were much admired and inquired about during the time of the exhibition. The international jury granted this firm the high award of a gold medal.

Immediately opposite, the Record Foundry and Machine Co., of Moncton, exhibited their ranges and heating stoves, some of them entirely nickel plated. These really superior samples of heating and cooking appliances obtained a silver medal.

The Star Iron Co., of Montreal, exhibited their well known hot water furnace, which stands well on the markets. Having to compete with the full collections of the largest manufacturers, this single apparatus could hardly expect more than a bronze medal, which they received. Messrs. Chapleau & Son, of Montreal, and Butterworth & Co., of Ottawa, also obtained bronze medals under the same circumstances. Taken altogether, our heating and cooking appliances were certainly most interesting and reflected credit on our manufacturers.

## GROUP XIII.

## THREAD, YARN, TEXTILE FABRICS, CLOTHING.

This important group included most of the manufacturing industries of Canada. It occupied a large number of show cases in the galleries of the Canadian pavilion. Many of our Canadian visitors declared themselves much surprised and gratified at the display made by Canada, which was altogether beyond their expectations. It is a fact, much to be regretted, that there exists amongst our own people a disposition to belittle the manufactures of their own country, and that in consequence manufacturers find themselves compelled to disguise their best productions as of foreign make in order to secure the custom of home consumers. The Canadian display at the Paris exhibition should do much to remove this evil. It has there been shown that our goods, in several lines, can stand competition with the best that Europe produces, and that in Canada, European goods at high prices are not necessarily better than Canadian goods at lower ones. We have immense advantages in natural productions, water power, &c., and should, therefore, be able to do better for the consumer than European competitors.



Class 80 (Cotton Thread and Fabrics)—First and foremost in the textile group were the large show cases of cotton fabrics exhibited by the Montreal Cotton Co., the Dominion Cotton Mills Co., and the Canadian Coloured Cotton Mills Co., also of Montreal. The whole collection was remarkable and the international jury, composed of the greatest manufacturers of the world, were much surprised at Canada having attained such excellence at such low price of production. The Montreal Cotton Co.'s exhibit especially, with its Italian cloths, canton flannels, brocades, cashmerettes, lappet muslins, sateens, damasks and cotton moire antiques, elicited great praise, resulting in the firm receiving the highest award, a grand prize, for its collection of coloured cotton goods.

The Dominion Cotton Co., which has mills at Montreal, Magog, Moncton, Halifax, Kingston and Brantford, made a great display of cottons, bleached and unbleached sheetings, grain bags, canton flannels, ducks, towelling, quilts, hosiery, printed calicoes, flannelettes and many other lines of cottons. The whole collection, well displayed, could not have been easily surpassed. Numerous inquiries were made as to the possibility of dealing in these goods on fair terms, and there is no doubt that, if the home market does not absorb the whole production, an important foreign trade may be secured in consequence of this exhibit. Inquiries were made also as to the Montreal Cotton Co.'s grand prize goods, but in this case the company could not even supply the home demand and were not anxious for foreign trade.

The Dominion Cotton Co. was awarded a gold medal, and the Canadian Coloured Cotton Mills, of which D. Morrice Sons & Co. are agents in Montreal, were granted a silver medal for their fine display of cotton goods. They consisted of denims, tickings and awnings, gingham and dress goods, saxons and flannelettes, damasks, shirtings, galatea stripes and Oxford shirtings, all of superior design and workmanship. The two large show cases which they filled attracted considerable attention and inquiry, and will probably result in new demand for these lines of goods.

The Yarmouth Duck Yarn Co. exhibited an important collection of sail and other lines of duck. Inquires were made by and samples furnished to the French War Department, with a view to the use of these goods in the French army. These were the four exhibits in Class 80.

In Class 82 (Woollen Yarns and Fabrics) the Paton Manufacturing Co., important wool manufacturers of Sherbrooke, exhibited two large show cases of fancy tweeds, worsted suitings, Canadian homespuns, dress goods, overcoatings, beaver and military fabrics. This collection elicited high commendation and secured the award of a gold medal. For the better display of textile exhibits the Canadian Commission obtained the services of the window dressers of the Printemps, one of the largest Paris departmental stores. The result was that the Canadian show cases were models of elegance in their general arrangement and contributed largely to the great success which was achieved.

The Rosamond Woollen Mills of Almonte had also a fine exhibit of worsted and woollen yarns, which obtained a silver medal. The Richelieu Woollen Mills of Chambly were granted a bronze medal for their case of ladies' dress goods, serges and flannels of superior quality. Taken altogether our woollen exhibit plainly showed that the home market could be supplied with a full line of merchandise of excellent material and workmanship, equal, if not superior, to the imported article.

The Merchants Dyeing and Finishing Co., of Toronto, exhibited, in Class 78, samples of dyeing and finishing of dress goods, Japanese silks imported from England, France, Germany and Japan as they came from the looms. Being dyed and finished in Canada they are given the shades required by fashion. This interesting exhibit obtained a bronze medal.

In Class 83 (Silks and Silk Fabrics) the Corticelli Silk Co., of St. Johns, filled one of the large show cases with a brilliant and artistic collection of spool silks, gilt edge machine twist of the highest standard, knitting and embroidery silk, sewings and twist for tailors' use, and numerous varieties of this class of silks. All these goods were artistically displayed, so that the Corticelli show case was certainly one of the brilliant and attractive ones of the Canadian Pavilion. When examined by the international jury, the Corticelli silks were declared equal, if not superior, to any on the grounds, and obtained a gold medal, as a very high award, for their general excellence, great strength and exquisite colouring.



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*Furs.*—From time immemorial the Hudson Bay and other fur companies have, by their annual sales of North American furs, created a world wide reputation for the fur trade of Canada. As a consequence every visitor to the Canadian pavilion was looking anxiously for our display of fur garments and they were not disappointed.

The two well known houses of Senator Paquet, of Quebec, and Chas. Desjardins, of Montreal, vied with each other to show with what perfection the furriers of Canada can supply the demand of their customers. Already these houses have an extensive foreign trade with the United States especially, travellers and tourists from thence annually making large purchases of Canadian furs. The exhibits comprised a full collection of fur garments which were much admired and elicited many inquiries as to cost, &c. The collection comprised garments of nearly all the furs indigenous to Canada, as used both by ladies and gentlemen. As a recognition of this remarkable exhibit the international jury awarded a gold medal to Senator Paquet, and another to Mr. Chas. Desjardins. Mr. Miller, of Toronto, obtained a silver medal for his collection.

In Class 85 (Tailoring, Dressmaking and Clothing for Men, Women and Children) Messrs. Boucher & Mercier, of Montreal, exhibited a case of men's clothing, including police and firemen's garments, &c., and were awarded a silver medal for superior finish. Senator Paquet was also awarded a silver medal, and Mr. Chas. Desjardins a bronze medal for their exhibits.

In Class 86 (Various Trades connected with Clothing) Senator Paquet exhibited a remarkable collection of prepared skins for gloves of excellent material and workmanship, much admired by the international jury, who awarded him a gold medal. The peculiar merit of this exhibit was that Senator Paquet not only manufactured the gloves but also dressed the skins employed in their manufacture in his factory in Quebec.

In the same industry, the Balcer Glove Manufacturing Co., at Three Rivers, had a fine exhibit, filling a large case of their specialties for winter and summer wear, and some three hundred samples varying from the finest kid to the workman's heavy winter mit. The display did great credit to Canada. A gold medal was the high award granted to this enterprising and successful house.

Close by stood another equally large and remarkable glove exhibit, made by Mr. Frederic Galibert, of Montreal, who also manufactures a full line of excellent goods well patronized by the trade, and much admired by the visitors at the Canadian pavilion. Mr. Galibert also dresses the skins employed in his glove factory, and produces several hundred different samples for the Canadian trade. A silver medal was awarded for this exhibit.

In the boot and shoe industry, Canada is able to compete with the world, having many advantages in her favour for the manufacture of these articles at low prices.

First and foremost in the Canadian exhibit stood the two large show cases of Messrs. Marsh & Co., of Quebec, filled with a complete display of boot and shoe wear for men, women and children. For elegance, workmanship and price combined they were not excelled by any exhibit of their class on the grounds, and were awarded a gold medal. Messrs. J. D. King & Co., of Toronto, also obtained a gold medal for their superior exhibit. This firm give special attention to their export trade all over the world. Their equipment places at their disposal the best facilities for quick and cheap production.

The Slater Shoe Co., of Montreal, has acquired a world wide reputation for its specialty of fine foot wear made by the Goodyear Welt process. They are made to retail at standard advertised prices stamped on the soles. The samples exhibited were for men only and for this reason, although a very superior article, were awarded only a silver medal. Messrs. H. Lamontagne & Co., of Montreal, completed this very creditable Canadian collection with various samples of moccasins for bushmen, miners and farmers, and also a complete assortment of elegant and tiny infant soft sole shoes, of artistic design and colouring.

In connection with the boot and shoe trade, the Duplessis Pegging and Sewing Co., of St. Hyacinthe, exhibited in class 79, appliances used in sewing and making wearing apparel, two excellent machines, which were awarded a silver medal by the international jury. They were surprised to find that the Duplessis Pegging Machine made its own pegs, works without lasts, in the same operation cutting the pegs automatically inside



the shoes and leaving a smooth inner sole, and performs its work at a high rate of speed.

The finishing soles machine also works automatically, with a flexible shaping roller. They were both put in operation and attracted great attention. Orders were taken for several foreign countries and the company has every prospect of a flourishing trade.

Mr. Louis Côté, of St. Hyacinthe, exhibited in operation, an ingenious improved pantograph of his invention, outlining and cutting patterns of boots and shoes, and garments of all descriptions, for which a silver medal was awarded. Mr. Côté had no difficulty in selling his patent rights in France.

In the same class Mr. Peyry, of Montreal exhibited an appliance for fitting ladies and gentlemen's garments by a new method. A collection of samples was exhibited, including seamless jackets and mantles, very interesting to ladies. For this a bronze medal was awarded.

In Class 84 (Lace, Embroidery and Trimmings) a large show case was filled with a brilliant display of ladies' work, including lace, embroidery, crochet work, priest's vestments, artistic paintings on silk, and other interesting specimens. The collection was admired by lady visitors who stated that Canada's exhibit included some of the finest ladies' work on the exhibition grounds.

In Class 86 was also to be found probably one of the most attractive show-cases of the whole pavilion. It consisted of four very handsome and elegant wax figures, exhibiting the goods of the Dominion Corset Co., of Quebec. This establishment, which now largely supplies the home market, is fully equipped with every modern improvement, so as to compete for the home and foreign trade. The office and workshops are situated in the midst of the best adapted working population for the manufacture of this special line of goods. Three hundred sewing machines, some of them with eight needles, are put in motion by the hydraulic power of the Montmorency Falls. For design, material, workmanship and price, the machine-made Dominion corsets have no superior in their own class of goods for the home market. The international jury, after full examination, awarded a silver medal to the Dominion Corset Co., in competition with the best Parisian makers, who are well known specialists in this costly and artistic line of special goods.

In hats and caps the Union Hat Works, of St. Johns, exhibited in Class 86 a full collection of fur felt hats in assorted colours, which find a ready market in Canada, and were considered, in material and workmanship, worthy of a silver medal.

Senator Paquet, of Quebec, also exhibited a collection of straw hats, which were much admired and were equal to anything in that line of goods. These straw works, recently established, will no doubt soon supply the home market and successfully compete with the most popular imported article.

The Standard Shirt Co., of Montreal, having one of the largest factories of its kind, exhibited over one hundred and fifty samples of their work. They completely filled two large show-cases with some of the very best goods in the Canadian pavilion. The exhibit was remarkable for variety of design, elegance, material, workmanship and price, and was granted a silver medal. This house supplies not only the home market, but exports to Australia and South Africa.

The Dominion Umbrella Factory, of Montreal, also exhibited a dozen samples of their excellent work, an elegant collection of fancy umbrellas, which obtained a bronze medal from the international jury.

## GROUP XIV.

### CHEMICAL INDUSTRIES.

In this group Canada takes a prominent position in some lines, but in others is only starting work, with the prospect, however, of supplying the local demand in the near future. Thus the great house of Lyman Bros. Co., of Toronto, has initiated, with much success, the manufacture of chemical and pharmaceutical preparations. They had



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a complete exhibit in Paris, for which they obtained a silver medal, in competition with the largest chemical works of the world.

In Class 90 (Perfumery), Messrs. Lyman Sons & Co., of Montreal, exhibited a very attractive show case. It comprised high class perfumery of their own manufacture, floral extracts, Cologne and Lavender waters of various grades, sachet and toilet powders, tooth powders and pastes. This new industry is prospering in the Canadian market, and is likely to develop a large trade. Messrs. Lyman Sons & Co. were awarded a silver medal, and Kattini Malouf Brothers, of Montreal, an honourable mention for their perfume exhibit.

In toilet soaps and powders, the firm of Alfred Savage & Sons., of Montreal, filled a large show case with a fine assortment of soap and other perfumed toilet articles, including their baby soap, which has acquired a reputation for its superior quality. This exhibit was attractive and was awarded a silver medal by the international jury. The American Dressing Co., of Montreal, exhibited their Diamond finish dressing, and other polish combinations, for leather and shoes of all kinds and colours. The international jury, after examining this collection, granted them a bronze medal, the highest award for this class of goods. The Canada Paint Co. was equally successful.

Class 88 (Manufacture of Paper). When the immense and daily increasing paper consumption of the world is taken into consideration, with the illimitable sources of supply to be found in our northern forests, and our immense water power scattered all over the Dominion, it is beyond question that Canada should speedily become the chief paper producer of the world.

With this prospect in view, the Canadian Commission desired to make a full display in Paris of our paper industry. This was done with great success and Canada secured the highest award, a grand prize, for the best manufactured article, although in competition with the world; and two gold medals for newspaper, pulp and pulp wood.

The Rolland Paper Co., of Montreal, exhibited an ample collection of their commercial cardboard and paper, which enjoys a high reputation for commercial purposes. This firm, having invested several hundred thousand dollars in their large paper manufactory at St. Jérôme, fully equipped with the most modern and improved machinery and processes in paper making, made a specialty of the highest class of stationery. Both the Federal and the Provincial Governments, our banking and Railway corporations, are now being supplied by this firm, the home-made articles being considered equal, if not superior, to the imported merchandise. This opinion was largely confirmed by the international jury, who granted the Rolland Paper Co., in Class 88, the highest award, a grand prize, for their collection of superior commercial standard papers. A gold medal was also awarded in Class 92, for their collection of stationery, including note paper, envelopes, pads and boxes of various and elegant designs, sizes and prices for all purposes. This triumph of Canadian paper making will be appreciated when it is considered that the Rolland Paper Co. have alone, on the whole continent of America, taken a grand prize for paper making, and that in the whole British Empire the firm of Henry Proude, of London, is the only other firm receiving equal recognition.

The Laurentide Pulp Co., of Grand'Mere, were awarded a gold medal for their exhibit of pulp and newspaper (Class 88). This consisted of an exhibition of pulp material from the initial log to the finished article, showing the process in its various stages, culminating in large rolls of newspaper, some of them eight feet wide. The whole exhibit was without a rival of its kind on the exhibition grounds. It largely contributed to impress the international jury and visiting public with the unbounded resources of the Dominion of Canada as a great paper making country.

The Chicoutimi Pulp Co. also had an exhibit of several bales of wood pulp, surmounted by a large photograph of their extensive works at Chicoutimi, and by another large photographic view of the first steamer leaving their seaport with a 5,000 tons cargo of pulp for Great Britain. This Company also was awarded a gold medal. The perfect Mucilage Bottle Co., of Paris, Ont., obtained a bronze medal in the same class.

In Class 89 (Leather and Skins) the Dominion of Canada exhibited a complete collection, from the heavy sole leather to the finest calf skins, and obtained the high award of a gold medal, besides silver and bronze. The leather manufacturing industry



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of Canada is a large one, fully up-to-date in equipment and processes, supplying the home and foreign markets. The advantage of using the hemlock bark for tanning purposes has given the Canadian manufacturer a decided advantage. But the very latest processes have also been adopted, as demonstrated by the firm of C. Galibert & Sons, of Montreal, who were granted a gold medal for their superior Chrome tanned calf skins. French calf pelts can now be imported into Canada in the rough, manufactured in Montreal, and re-exported to the French market, and compete successfully with the French made article. Messrs. Galibert not only supply the Canadian demand, but the foreign market also. The international jury was somewhat surprised at these facts and awarded Messrs. Galibert & Sons' exhibit a gold medal.

The firm of Bickell & Wicket, of Toronto, exhibited an excellent collection of every variety of leather in general use. It consisted of bag and trunk leathers, bookbinders' leathers, fancy goods leather, book and show leathers and saddlers leathers, in all some hundred distinct samples of excellent merchandise, with which they supply the home market. This collection attracted much attention. They were awarded a silver medal.

The same may be said of the Breithaupt Leather Co., of Berlin, who made a special exhibit of their hemlock tanned sole leather. Some fifty full size leather sides were hung on a hemlock frame, showing this exhibit to the best advantage. It consisted of Eagle, Penetang and Listowel tannages made from dry hides and a full collection of cut soles and heels of all sizes and designs. This valuable exhibit found a ready sale and no doubt might have been several times duplicated. A bronze medal was awarded by the international jury.

In Class 91 (Manufacture of Tobacco and Matches) the Dominion of Canada obtained a gold medal for an exhibit of tobacco leaf, cigars and cigarettes, contributed by Canadian manufacturers and growers. The large show case, in which they were kept under lock and seal, according to the French government regulations, presented an imposing appearance. Hundreds of boxes and packages of the best brands, manufactured by Houde & Co., Quebec, Tassé Cigar Co. of Montreal, Arthur Guay of Montmorency, Hilda Cigar Factory of Toronto, and others, made a grand pyramidical display, relieved by photographic views of their works. After a thorough examination of the collection and testing a certain number of samples, the international jury declared themselves thoroughly satisfied with the superior quality of the Canadian leaf and manufactured article, and granted to the collection the high award of a gold medal.

## GROUP XV.

### VARIOUS INDUSTRIES.

The most important exhibitor in this group was the Canadian Rubber Co., of Montreal, which stands in the front rank of rubber manufacturers in the world for excellence of workmanship. A large show case of boots and shoes was the special feature of their exhibit, although other rubber goods, including druggist sundries, hot water bottles, &c., added considerably to the importance and interest of the collection.

In Canada, where rubber boots and shoes are generally used, the company finds a ready market. Not so in Europe, where rubber shoes are only occasionally used. Still, a quantity of Canadian goods are being introduced in the British and other markets, and the Rubber Company's exhibit will no doubt result in an increased demand. The international jury were highly interested in the whole collection, and granted this Montreal firm the high award of a gold medal.

In Class 98 (Brushes, Leather Articles, Fancy Articles and Basket Work) the firm of H. Lamontagne & Co., of Montreal, exhibited a fine collection of leather travelling sacks and bags, which filled the largest show case in the Canadian pavilion. This firm, who are large manufacturers of leather trunks, valises, mail bags and other articles, have filled several military contracts for both the Canadian and Imperial Governments in saddlery and other goods, and these have been declared highly satisfactory. They were awarded a silver medal.



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In Class 95 (Jewellery and Precious Stones) Messrs. Ambrose Kent & Sons, of Toronto, exhibited the most ornamental exhibit of the whole Canadian pavilion. It consisted of Foresters' presentation jewels, society charms, pins and buttons, souvenir spoons, society uniforms, paraphernalia and regalia, as manufactured by them for the Independent Order of Foresters and other kindred societies. They were awarded a bronze medal.

In Class 98 Mr. H. F. Coombs, of St. John, had a full show case of Indian basketware and beadwork, wooden canoes and other fancy articles, which were much admired by the international jury, as exhibiting the native Indian taste and ability in executing these elegant articles. The inquiries about them were numerous, and will probably result in a demand for this fancy work. A silver medal was granted for the collection. Mr. Coombs was also awarded a bronze medal for samples of snowshoes, as was Senator Paquet for a toboggan and snowshoe exhibit. The Bailey Cutlery Co., of Brantford, also obtained a bronze medal for a valuable exhibit of steel patent shears for all purposes.

## GROUP XVI.

## SOCIAL ECONOMY, HYGIENE, PUBLIC CHARITABLE RELIEF.

This exhibit attracted much attention during the whole of the exhibition, and more especially during the Universal Congress of Mutual Societies. The international jury were so favourably impressed by it, that the high award of a gold medal was granted to the Independent Order of Foresters, Toronto, and a silver medal to their eminent representative in Paris, Mr. P. N. Breton, of Montreal, as collaborateur.

In Class 112 (Public Charitable Relief) both the institutions for the deaf and dumb, and for the blind of Ontario received gold medals for the work performed by these benevolent organizations, large photographic views of which were on view. Reports of the methods of teaching and practical work were consulted, statistics of the results obtained produced, to the satisfaction of the international jury, who freely admitted Canada's advanced position in philanthropic work.

## CLOSING OF THE EXHIBITION.

After nearly seven months of uninterrupted exhibition, with the exception of the Canadian department, which was closed on Sundays, the closing ceremonies took place on November 12, amidst an immense concourse of people.

Being anxious to finish their work as soon as possible, the Canadian Commission had prepared weeks in advance to begin closing operations as soon as possible and carry them through with all possible dispatch. A large force was put to work, and by the end of November most of the department had been carefully packed and was ready for shipment to the Glasgow Exhibition, or to Canada, according to instructions.

The show cases which were to be installed at the International Exhibition at Glasgow were carefully assorted, and the large size double and plate glass packed by experts, so as to secure their safe transportation. In the general hurry and bustle in shipping and transportation of such an immense exhibition, there was the greatest difficulty in procuring teams and cars and, as a consequence, the month of December had closed before the last package could be safely shipped. Eventually they arrived safely both in Glasgow and in Canada via Antwerp, and were shipped directly to each exhibitor.

Since their return to Ottawa, the Commissioners have paid by cheque to the exhibitors the amounts received at the close of the exhibition for the large quantity of goods sold for them.

## CONCLUSION.

In closing their operations the Canadian Commissioners feel that they have used their best efforts towards the accomplishment of the important duties entrusted to them; and in doing this they observed strict economy, sometimes under difficult circumstances.



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If the sum of \$77,000 paid for space and colonial building is deducted from the general expenditure, \$315,000, it will be found that compared with the amounts paid at previous International Exhibitions, at Chicago and the Colonial Exhibition in London, the cost of the Paris Exhibition is not excessive, especially if the character of the display made by the Dominion of Canada in every department is taken into consideration. It should also be remembered that most of the collections will be exhibited in Glasgow in 1901, thus serving a double purpose.

The Canadian Commissioners cannot close their operations without thanking most heartily the hundreds of exhibitors who have so kindly, at considerable sacrifice of both valuable time and money, given their much needed support in carrying out the Paris Exhibition. It has been stated by parties badly informed that the Paris Universal Exhibition had been a failure, financially and otherwise. Thousands of our own citizens who had seen for themselves the marvellous display made in 1900 by the most advanced nations of the world, can testify to the great success of this colossal undertaking. But a testimony still more valuable is the declaration made by the High Commissioner of Germany, which certainly cannot have been dictated by any partiality to the French Republic.

On November 22, 1900, the Foreign Commissioners at the Paris Exhibition, before leaving for their homes, offered a farewell banquet to the French Government and officials at which D. Kickter, High Commissioner of the German Empire, as President of the banquet, had the great honour of proposing the toast of the evening in the following words :—

‘The Universal Exposition of 1900 has closed its gates. The grandest manifestation of human activity in all the domains of intellectual and material life is now a thing of the past. The object in view, cherished by the men who had given it life, that of presenting to the world, in a given space, all the acquisitions of the human brain, the infinite complexity of modern life, has been realized in the most brilliant manner. All the nations in the world have ardently and jealously rivalled with each other to gather the most precious and remarkable treasures of ancient and modern times.

‘There is not the least doubt that the Universal Exposition of 1900, by its general disposition, as well as by the high value and perfection of objects exhibited, is by far superior to all those that have previously taken place in Europe or elsewhere.

‘The Palaces of the Universal Exhibition will disappear, the great City of Paris, of which we have been the enchanted guests for many months, will resume its ordinary life, but the personal relations we have been fortunate enough to inaugurate during the whole of this time will be for ever lasting.

‘The names of the men who have given to the Universal Exhibition the imprint of their character will live for ever in our memory. We look with admiration at Mr. Alfred Picard who has accomplished a work of universal peace, such as the world will have never seen for its grandeur and impressiveness.’

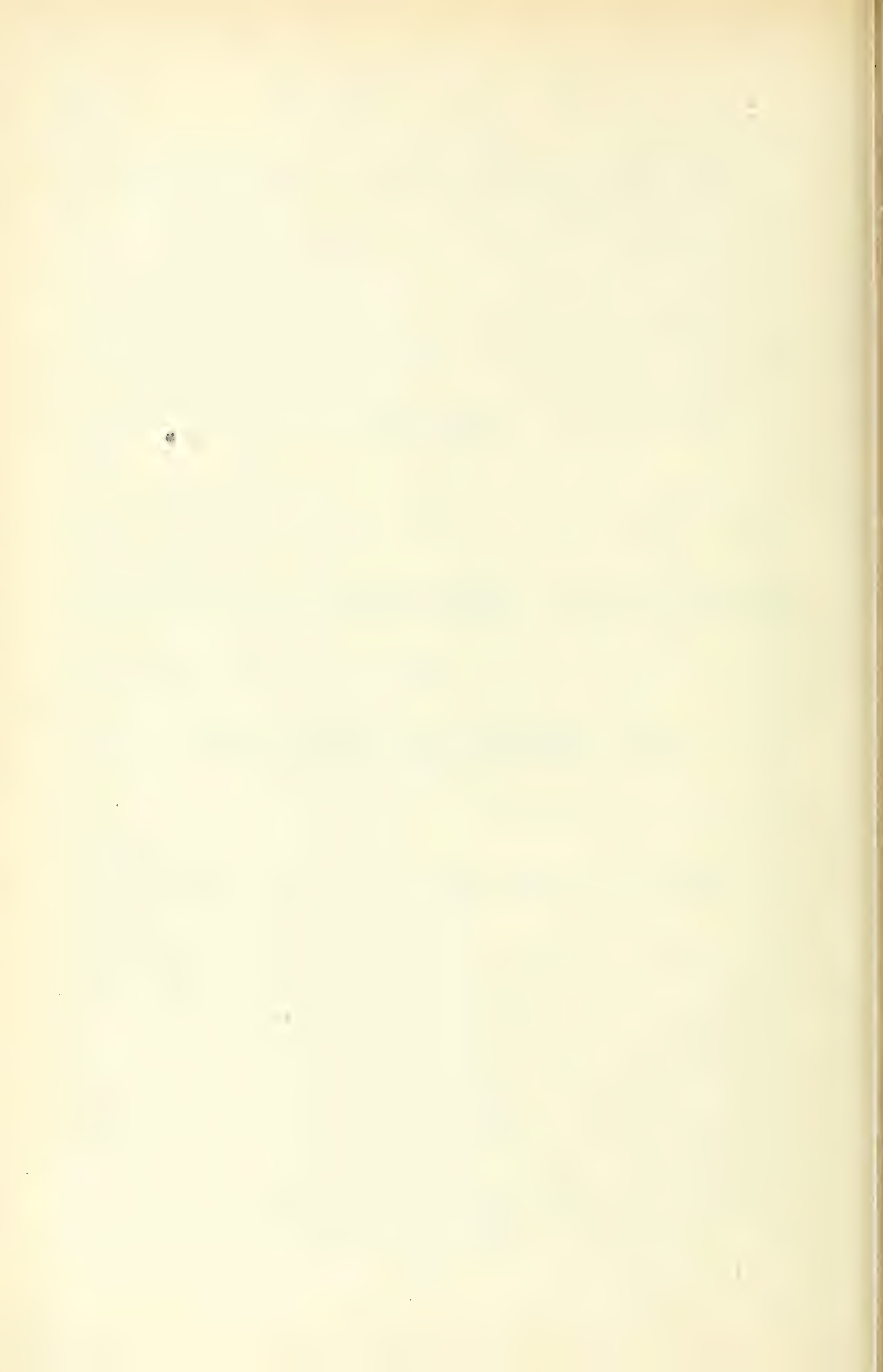
Such is the unbiassed appreciation of the Paris Exhibition which has just closed, in which the Dominion of Canada has taken such a prominent part. Notwithstanding the hostile reports, circulated by a certain press, there can be no doubt that the world has never seen a more splendid manifestation of man’s labour and genius, a more complete success in every section of this unparalleled exhibition. The enormous attendance of 48 millions of visitors was beyond all expectations. The festivities by night and day elicited universal praise, and the daily hospitalities, tendered by the French Government and people to their foreign guests, could not be surpassed. The Canadian Commissioners feel highly grateful, for the very kind manner in which they have been uniformly received and entertained, as the representatives of Canada. They feel that no greater opportunity could have presented itself to fully advertise before the world, the products and resources of Canada, and, as a consequence, a great impetus will necessarily be given to the extension of our commercial relations with foreign countries. The object of the Government has, therefore, been fully attained, and the Dominion of Canada has every reason to congratulate itself on the very great success which has attended its participation in the Paris Universal Exhibition of 1900.



REPORT  
OF THE  
COMMISSIONER FOR CANADA  
TO THE  
PAN-AMERICAN EXPOSITION

Buffalo, New York May 1 to November 2 1901







## REPORT OF THE COMMISSIONER FOR CANADA TO THE PAN-AMERICAN EXPOSITION

OTTAWA, ONT., December 20, 1901.

To Hon. SYDNEY FISHER,  
Minister of Agriculture,  
Ottawa.

SIR,—I have the honour to submit the accompanying report of my work, as Commissioner for Canada to the Pan-American Exposition, held at Buffalo, N.Y., from May 1 to November 2, 1901.

I have the honour to be, sir,

Your obedient servant,

WM. HUTCHISON,  
*Commissioner for Canada to the Pan-American Exposition.*

The idea of an exposition to illustrate the progress of the people of the Western Hemisphere, and to promote social and commercial interests among the states and countries of the western world, was conceived at Atlanta, Georgia, in 1897.

On June 25 of that year, a company was formed and incorporated under the name of the Pan-American Exposition Company. Owing to the Spanish-American war, in which the United States was at that time engaged, it was thought best to postpone the exposition for a time.

In 1899 an Act of Congress was passed, officially approving the holding of the exposition at Buffalo, and appropriating the sum of five hundred thousand dollars (\$500,000), for the purpose of erecting a government building, and for making an exhibit of the various departments of the public service.

Under this Act, the Pan-American Exposition Company was authorized to issue to the different countries and states of the Western Hemisphere, invitations to co-operate in this Pan-American Exposition, to be held in Buffalo from May 1 to November 1, 1901.

The formal invitation asking that the Dominion of Canada be represented at this exposition was accepted, but not until January 7, 1901, and a Commission was appointed on January 15.

Although many of the buildings were in an unfinished state and but few of the exhibits installed, the exposition was formally opened on May 1, 1901, and formally dedicated on the 20th of that month, Vice-President Roosevelt officiating at the dedication ceremonies. His Excellency, the Governor General of Canada, was invited to be present, but was unfortunately unable to be there.

The Dominion of Canada was already engaged in making preparations for a large exhibition at Glasgow, the date of which was concurrent with that of the Pan-American Exposition. Glasgow enjoyed a decided advantage, inasmuch as nearly all Canadian exhibits, shown at the Paris Exposition, were removed intact to Glasgow. Our manufacturers preferred making an exhibit at Glasgow, considering Great Britain a better field, owing to more favourable tariff conditions. This accounts for the meagre display of machinery and manufactures at the Pan-American Exposition. Despite these circumstances, however, the industries of Canada were not entirely unrepresented, creditable exhibits being made in each of the different divisions, many of these obtaining high awards.



The Pan-American Exposition Company had placed certain space in the different buildings at the disposal of the Canadian Government. It was arranged, however, that the Dominion Government would not make an exhibit in any of these departments, but would erect a suitable executive building, and make a special feature of the agricultural and live stock exhibits.

The different spaces originally allotted to the Dominion Government by the Pan-American Exposition Company were placed at the disposal of the different provinces. Of the provinces, Ontario and Manitoba accepted; Ontario making highly commendable displays in mines, ethnology, forestry, horticulture and dairying, while the province of Manitoba occupied a large and conspicuous place in the agricultural building, making a very fine display of grains, grasses, &c., illustrating the fertility of the soil in that province, and otherwise disseminating information concerning the progress and attractions of the prairie province.

The province of Nova Scotia, later in the season, showed a very creditable collection of fruit in the Horticultural building.

In October the North-west Territories made a special display of western range cattle and sheep, in an open corral, which was the subject of much favourable comment. These cattle had been selected from herds out on the range, and a notice was prominently exhibited over the corral stating that these cattle had never been fed by hand nor sheltered in the winter. Great astonishment was expressed by American cattlemen at the fact of such animals being raised under the circumstances mentioned, in a country which they had imagined to be under snow for several months in the year.

Previous to the appointment of a Commission, the Hon. Sydney Fisher, Minister of Agriculture, visited Buffalo for the purpose of conferring with the Pan-American officials, as to the location of the Canada building. He chose for it a site in close proximity to the Agriculture building, Dairy building and Stock barns. The Dominion Government's participation in this exposition, as distinguished from that of the provinces, and private exhibitors, being almost entirely in agriculture and live stock, it was thought desirable to have the Canada building in the vicinity of these buildings. On selecting this site Mr. Buchanan stated to the Minister of Agriculture that an exhibit of some kind would have to be made in this building, as said space was within the limits set for exhibit buildings, and a building could not be put there merely for executive purposes. By arranging to make an agricultural display in connection with the Executive building this prominent and favourable location was secured.

The selection of this site was the subject of a little criticism at first, but the decision of the Minister was afterwards fully vindicated by the crowds of people who daily visited the building, as the visitors' register (though indicating only a percentage of the visitors) will tend to show, the attendance being greatly in excess of any of the state or other foreign buildings. In fact our location being close to one of the principal gates, and at the entrance of the Stadium, was the cause of a little jealousy on the part of the other Foreign and State Commissions, who considered their own locations as anything but convenient. In this connection I might mention that at a meeting of the Foreign and State Commissioners called to hear an address on the plan and scope of the St. Louis World's Fair in 1903, the Commissioners present, prompted by the situation of the Canada Building at the Pan-American Exposition, were much concerned as to the location to be given the Executive buildings at the St. Louis Fair.

The Dominion of Canada having formally accepted the invitation to co-operate in the Pan-American Exposition, and a Commission having been appointed, plans for a suitable building were made, and accepted and contracts called for. The lowest tenders were accepted and work was commenced at once. The Pan-American Exposition Company experienced many difficulties and tedious delays through trouble with the different labour organizations. This necessarily affected the work on the Canada Building as the contractors for it were in several cases employed on the buildings being erected by the exposition. This fact coupled with unfavourable weather had the effect of delaying the work on the Canada Building, which was, however, ready and occupied early in June and was formally dedicated on Dominion Day, July 1. The Hon. F. W. Borden, Minister of Militia, was chosen to represent the Cabinet at the exposition on this occa-



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sion, and was accompanied by the 48th Highlanders of Toronto, as an honorary escort. The dedication exercises took place in the Temple of Music, and were participated in by the mayor of Buffalo and the principals of the exposition, and attended by a large gathering of Canadians and Americans.

It might appear that we were late in the completion and opening of our building, but it should be borne in mind that very few of the state and foreign were completed until some time after ours. In fact the road leading to the Canadabuilding and the grounds about the building were hardly passable until June 23, which will convey some idea of how far behind the Pan-American Exposition Company were with their work.

The Canada building at the Pan-American Exposition was a structure 70 x 108 feet in dimensions, and two stories high. The style of architecture was Elizabethan, the exterior being finished in staff. The roof was shingled and stained a bronze green. A wing extended from each side of the main building, these being connected by a broad verandah and balcony, the north wing being topped by an octagonal tower. Each wing was constructed with large bay and overhanging gable in half timber style, the timbers finished in dark chesnut colour, and the staff throughout in an ivory tint.

The main building consisted of a large exhibition room, 34 x 54 feet. In this was installed an extensive decorative exhibit of grains, grasses and honey furnished by the Central Experimental Farm, Ottawa, combined with numerous fine specimens of moose, caribou, deer and buffalo heads. The wall space was utilized for this exhibit, the different specimens of grains and grasses being each labelled, and the whole encased in shallow cabinets behind plate glass. Immediately fronting the main entrance stood a handsome specimen of buffalo in a glass case, and on either side of this large oak trophies held exhibits of grain, pease, beans and corn in glass receptacles, one trophy being surmounted by a wapiti and the other by a musk ox. An immense map, showing by means of measurements and figures the growth of Canada's export trade in the last ten years, was placed on one of the walls. The great contrast between 1891 and 1900 gave rise to much remark and questioning on the part of American visitors, who seemed to have some difficulty in believing that a country on their borders could have been progressing with such leaps without their knowing anything about it.

The grains and grasses in this exhibit elicited the special admiration of the farmers of the United States, and many inquiries were made at the office *re* the procuring of seed.

A large annex was added to the building for the purpose of accommodating the Intercolonial Railway, which exhibited a varied and extensive collection of game and fish, their object being to attract tourists and sportsmen. This exhibit was in charge of a representative of the railway, who did much good work by giving information and distributing literature descriptive of the many beauties and attractions afforded by the country contiguous to their road. The management of the Intercolonial Railway may be congratulated on their foresight in securing this location in the Canada building, for the stream of visitors who daily visited the building and their exhibit obtained definite information concerning the attractions offered by the railway to tourists that could hardly have been acquired in a small side line stall in the transportation building.

In the north wing were the ladies' reception rooms, a general sitting room, reading and writing rooms and lavatories. These rooms were comfortably and artistically furnished, the ladies' parlour being equipped with a fine upright piano of elegant tone and workmanship, loaned by the Gerhard Heintzman Company of Toronto. A visitor's register was a conspicuous feature of the general sitting room, and in the reading and writing room were to be found on file the leading newspapers of the Dominion of Canada and the city of Buffalo, also writing materials and accommodations.

The building was handsomely furnished throughout by the Canada Furniture Manufacturers, they placing their representative at our service to oversee the shipping and unpacking of the furniture, and the artistic and suitable arrangement of same. These furnishings were of a uniform fine quality throughout, and besides affording a comfortable resting place for our visitors were much admired for their richness and quality. This furniture was installed under a special arrangement with the Canada Furniture Manufacturers, the cost of same amounting to a merely nominal charge for wear and tear.



The south wing was taken up by the offices of the Commissioner and staff, the office of the representative of the Department of Interior, and of the Live Stock Department. In the general office in this wing visitors were given all information, and a postal system was of great convenience, many visitors taking advantage of it.

Attendants were stationed in the exhibition rooms to give all required information and render service to visitors, and a ladies' maid was in attendance in the ladies' parlour and lavatory.

About forty thousand people (40,000) registered in the visitor's register in the building, a large number of these being Americans. Of course, this number was merely a percentage of those who visited the building. From the remarks made to one another, as well as from the opinions they were pleased to express to myself and other officials, they appeared to have been agreeably surprised at what they had seen and learned.

Arrangements were made with the Canadian railways for the transportation of goods to Buffalo, by way of International Bridge and Black Rock at a single rate. The Canadian roads assisted the exposition in every possible manner, giving reduced transportation charges on shipments of all kinds, as well as reduced rates to Buffalo from all points, the result being a steady stream of Canadian visitors at the exposition throughout the entire season. American visitors complained that their roads were not giving them the accommodations they had expected.

During the course of the exposition a large number of books and pamphlets pertaining to the resources of our country were distributed judiciously among the visitors to the Canada building. All of these were highly instructive, and were greatly sought after by thousands of people who became deeply interested in the subject. There is little doubt that by this means we have interested a large number of people who will eventually come to Canada, either to take up lands in our Canadian North-west and Manitoba, or help to develop the immense mineral and forest industries which are as yet still in their infancy. Particulars regarding the number and names of said publications are given below, viz :—

MEMORANDUM of books, pamphlets and other literature distributed at Canada building, Pan-American Exposition, Buffalo, N.Y.

Title and Description.	No. of Copies.
Hand Book, Dominion of Canada.....	950
Economic Minerals of Canada.....	4,900
Horticulture of Canada.....	4,900
Pulpwood of Canada.....	4,900
Forest Wealth of Canada.....	4,900
Agriculture of Canada.....	4,900
Food Products of Canada.....	4,900
Women of Canada.....	1,000
Statistical Year Book of Canada, 1900.....	252
Canadian Trade Index.....	250
Export Trade of Canada.....	5,000

IMMIGRATION LITERATURE.

Copies of folder map entitled :—

'The Investor, The Homeseeker, The Artisan.....	30,000
Copies 'Hard Wheat Belt' newspaper.....	7,200
Manitoba Free Press—crop edition.....	5,000
Folder map entitled 'Ranching'.....	10,000
Atlas of Canada, copies furnished through Chicago.....	3,000
Atlas of Canada.....	5,900
Western Canada Pamphlet.....	1,500
Delegates Reports.....	400
The Columbus, Ohio, office was requested to ship to the representatives of the Department of Interior at Buffalo, all the Atlases, Western Canada, &c., that could be spared, estimated at.....	5,000



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As stated in a previous part of my report, the manufacturers of Canada put forth their greatest efforts to make a good exhibition at Glasgow, and for this reason were not largely represented at Buffalo. However, taking into consideration this fact there was a good representation, and in competition with the manufactures of other countries and states, the awards obtained were most satisfactory. During the period of the exposition, numerous inquiries were made at the general office for information regarding trade in Canada, customs duties, &c. All of these were either attended to at once, or referred to the associations or firms interested. Copies of the Canadian Trade Index were supplied by the Canadian Manufacturers Association of Toronto, for distribution, and were referred to by many who were seeking information as to the manufacturers of Canada.

## HONEY.

The Ontario Beekeepers' Association had a fine exhibit of honey installed in the northern gallery of the agricultural building. This exhibit was arranged and well looked after by a representative of the association, and was very favourably commented upon by visitors, it excelling any other exhibit of honey made at the exposition.

## CANNED GOODS.

An exhibit of Canadian canned goods was made in the northern gallery of the agricultural building. This exhibit which was undertaken and arranged by the Department of Agriculture, consisted of canned meats, fish, fruit and vegetables, in the ordinary commercial packages, tastefully arranged in pyramids, and attracted favourable comment.

## DAIRYING.

A special building was devoted to dairy products and dairy machinery. In this building the Western Ontario Dairymen's Association installed a fine exhibit of cheese and butter, a very small percentage of which failed to reach the prize standard.

## LIVE STOCK.

The officials of the live stock department performed their work in a highly satisfactory manner. For further details of this work see special report on live stock and the model dairy test, which will be found highly creditable to Canadian production.

## IMMIGRATION.

One of the many instructions given to the Commission when leaving for Buffalo was to pay special attention to immigration. The work done by the representatives of the Department of the Interior, was of great importance, especially in securing immigration to our North-west Territories and Manitoba. A tastefully arranged notice was posted in a prominent part of the building to the effect that settlers could obtain one hundred and sixty acres free in Western Canada, and in response to this thousands of inquiries were made by farmers and others who were furnished with all desired information and literature on all matters pertaining to our western lands and the many benefits to be derived from settling thereon. The atlas published under the direction of the Minister of the Interior was of great value, and we had many inquiries for them both in person and by letter. We had many requests for maps of Canada and books pertaining to Canada from the school teachers of the United States, some of these arriving even after the exposition had closed. These teachers tell us that they are now teaching



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more about Canada in their schools than ever before, remarking that they were delighted to secure such good maps of this western country, as they hitherto had been unable to do so.

A great deal might be said about the inquiries at our office at the Pan-American Exposition by those intending to leave their homes with the object of settling elsewhere, and of the probable influx of immigrants into the newer districts of Canada. A few of these were Canadians desirous of returning to their own country, but the main body of them were Americans composed of those who have found agriculture in the United States unprofitable, and others who leaving their homes to engage in their life's work are unable to get good land in the United States at prices within their reach. Many had heard in a desultory way of Americans who had gone north and found a fine country. Many others had a little more definite knowledge derived from letters written by the pioneer settlers referred to, and in the case of those who desired to acquire cattle ranches, the information supplied them has been more definite as to localities and possibilities. The people seeking information as to cattle lands seemed to be men of more ambitious aims than those who were attracted by the offer of free farms in Western Canada. But it was quite clear that the movement setting in towards Western Canada is prompted by self interest and necessity and not, as has been frequently stated, due chiefly to the sentiment of returning Canadians. A somewhat analogous movement occurred in Canada about twenty-five years ago, when the farmers of Ontario left in large numbers for the United States North-west.

Take for instance the farmers of the middle and eastern states—they tell us they have a very poor crop this year (they sow winter wheat), but even when they have a good crop the millers will only pay a very low price for it. The millers claim that they are obliged to mix hard wheat with it to produce a good family flour, costing them more money, and state that the products of hard wheat are more in demand every day. These farmers feel that the only thing for them to do is to move to the district in which the hard wheat is grown, just as the Ontario farmers sought relief by emigrating to the north-western states.

It would be well perhaps to look back and note the change that has taken place in the milling business of the United States, and the effect the milling of hard wheat has had on the trade. Thirty-five years ago Oswego, New York, had a milling capacity of say eight thousand (8,000) barrels per day, grinding soft spring and winter wheat; to-day it has no mills. Rochester, N. Y., had about the same capacity, grinding principally winter wheat; now very few of these mills are left. Those that are left are grinding hard wheat from the United States North-west. New York City and vicinity had a capacity of ten thousand (10,000) barrels per day, grinding soft spring and winter wheat. To-day the output is not one-half that amount, and the mills are using all hard wheat instead of soft. Ten years ago bakers in New York were using flour from soft wheat and mixing it with hard. To-day all hard wheat flour is used for bread baking. This change has been working gradually, but effectually in favour of the hard wheat product. In Great Britain the market reports of forty years ago give us this information; Irish, Scotch, English and American wheats were quoted about the same value, whilst Baltic or Russian was very much higher. (This wheat was of the hard variety). This condition of affairs existed until about 1883, when the Russian receded in value, and the hard wheat of the American continent came to the front, taking the top price which it still holds. (On the Glasgow market Manitoba hard and Duluth No. 1 hard wheat, are to-day quoted at the top price). The Russian wheat has lost its value, (showing that the Russians are raising the soft variety) and to-day this wheat is among the cheap wheats offered.

In flour the same competition in Great Britain comes from the millers of Minneapolis and those Canadian millers who are milling hard wheat, the British miller having either to mill more hard wheat or go out of business. In Canada we find the same thing has taken place, with this difference—that is to say, thirty-five (35) years ago, when the millers of the United States were grinding soft spring and winter wheat, the millers of Ontario were grinding hard and winter wheat; the hard wheat raised in Ontario at that day has not since been excelled in the North-west or Manitoba. This



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Ontario Red Fife spring or hard wheat was taken into Minnesota by some Ontario farmers, and from there to the Dakotas, and subsequently to Manitoba, while through constant cropping of the land Ontario lost the qualities essential to producing hard wheat, and the quantity became less to the acre, and the soft wheat was then sown, producing more to the acre. This had the effect of inducing farmers to sow nothing but soft wheat. The bakers ceased using the product of such wheat, and about this time the importation of Minnesota flour began. The farmers of Ontario then moved in large numbers to the United States North-west. Later the Manitoba wheat and flour came on the market, taking the place of the Minnesota product.

Ontario millers who mixed hard wheat with the local soft spring and winter wheat, producing a good family flour, find that to-day, to keep up the strength of the flour for bread baking, they are obliged to mix in more hard wheat.

It is acknowledged in the United States and Canada that the hard wheat millers have control of the best trade. It is also known to the farmers of the United States where the hard wheat is grown, but they know the land will cost them from \$35 to \$45 per acre in the United States, and in addition to this the taxes are not only on the land but on everything they possess.

Through the energy and business methods of the Minister of the Interior, the Immigration Department has been and is doing a good work, explaining to the farmers of the United States the great benefits they will derive by going to the Canadian North-west and Manitoba, offering as an inducement to settlers one hundred and sixty acres free, and land adjoining, or in the vicinity can be purchased from private corporations at from three dollars to seven dollars per acre, the taxes on said land being quite inconsiderable. This information amounting to a business proposition is the element working to the benefit of our western lands; it is not sentiment but self interest that is drawing immigration from the United States. Raising wheat is to the farmer what gold mining is to the miner.

There is one very important factor in the future of this western country. When we have the winning hand let us guard against the introduction of soft spring wheat, which is only the product of worn out soil, a soil which no matter how well it may be fertilized and tilled will not produce hard wheat successfully. While the land in eastern Canada retained its power of producing hard wheat continuously for almost twenty years, the lands in many parts of the North-west are said by competent authority to be capable of producing the same wheat almost indefinitely. This being so, it would be a mischievous mistake to encourage the raising of soft wheat while our hard wheat is quoted on the principal markets of the world, on an average of fifteen cents per bushel more than soft. For years past Minnesota has taken the lead in the production of hard wheat. What do we find today? In the older settled portions of this state, they have had to adopt mixed farming, the land refusing to grow the hard wheat profitably, the Dakotas being the only states left in the union which can do so. I am informed by those well versed in the present state of the grain trade that it is almost impossible for the inspectors at Duluth to keep the grade of No. 1 hard wheat up owing to the farmers sowing so much soft wheat. A few years ago soft wheat was introduced into our North-west, in the belief that it would ripen early and be free from frost. It was found, however, to be comparatively speaking valueless, and was condemned. On the other hand the Canadian Pacific Railway management deserves the greatest amount of credit for its business foresight in counteracting the soft wheat movement, by bringing into Manitoba, free of freight charges, the best hard seed wheat that could be bought in Dakota. The farmers of Manitoba and the North-west are now reaping the benefit of this action.

It, therefore, behooves the farmers of the North-west and Manitoba, when the eyes of the whole world have been drawn to their country as being about the only one left to rely on, to see that they sow nothing but hard wheat, and guard against the fate that befell the Russian farmer.

In conclusion, I may say that the Pan-American Exposition has been, not only of present benefit to Canada, but the parent of advantages that will steadily continue and increase. While questions of every kind concerning Canada were asked and answered on the spot, and information dealing with all branches of trade and commerce dissemin-



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ated to visitors from every state in the union, the presence and superiority of Canada's exhibits incited both business men and important newspapers in the United States to ask why trade with a country of such resources was not more thoroughly exploited, and why if barriers existed to freer communication, some effort was not made to remove same. It revealed to many thousands the commercial existence of a country they had heretofore known only as a geographical expression, and while hundreds expressed their intention of taking advantage of the generous land offers made by the government of Canada, it became quite clear that these were but illustrations of what will happen wherever a knowledge of Canada becomes general.

The Canadian building was opened from June 20 to November 2, from eight o'clock in the morning to eleven in the evening, on week days. On Sunday it was closed.

I have much pleasure in testifying to the attention and zeal of all the officials employed in connection with the building, in the sometimes trying duty of giving due care to the demands and inquiries of the crowds of people who visited the building.

All of which is respectfully submitted,

W. HUTCHISON,

*Commissioner for Canada to the Pan-American Exposition.*



REPORT  
OF THE  
COMMISSIONERS FOR CANADA  
AT THE  
GLASGOW INTERNATIONAL EXHIBITION  
1901







## GLASGOW INTERNATIONAL EXHIBITION, 1901

To the Honourable SYDNEY FISHER,  
Minister of Agriculture.

SIR,—Having been appointed by Order in Council to act as Commissioners for Canada at the International Exhibition, to be held at Glasgow in 1901, your Commissioners have now the honour to present their report.

Before entering upon their special duty of reporting upon the part taken by Canada in this great exhibition, your Commissioners propose to give a sketch of the exhibition as a whole; its inception and the objects for which it was undertaken, the buildings and general arrangements, the collection in the art gallery, the products shown by foreign countries and by British colonial possessions, which have relation to the business interests of Canada; and the principal features of the exhibits from the United Kingdom.

Encouraged by the success which attended the exhibition held in the year 1888, the people of Glasgow resolved to commence the new century with an exhibition on a much larger scale, representing the manufactures, products, industries and material resources of all nations, and of the machinery and appliances relating thereto and articles illustrative of science and art, including ethnology and archæology. In particular it was intended that the exhibition should present a full illustration of the British Empire, its dependencies, dominions and colonies, and the progress in industry, science and art of all nationalities during the nineteenth century. In the year 1897 the proposal took formal shape, and at a meeting held in that year the initial steps were taken, and the work entered upon with that happy combination of public spirit and business capacity which characterizes the people of Glasgow in all their undertakings. The corporation, the citizens generally and a number outside of the city who, for various reasons, felt an interest in the success of the scheme, joined heartily in promoting it. A guarantee fund of £508,916 was speedily subscribed. Committees were formed, including all the leading men of the city and neighbourhood, as well as a number of influential men in London and elsewhere. A site was selected and plans and estimates for building were prepared. By deputation and correspondence, communication was had with the governments and commercial bodies of all the civilized countries in the world, including the colonial possessions of the Empire. Few of these held aloof, and the title 'international' was fully justified by the result of this appeal. So the work went on with the determination that, so far as it was within the control of the executive committee, all should be in readiness for the opening, which was fixed for May 2, 1901.

The site selected, a portion of Kelvingrove Park, about 100 acres in extent, was admirably suited for the purpose, not only for convenience, but also for the beauty of the surroundings. On the south-west of the ground the main buildings were erected, direct access to them being had both for passenger traffic and for the delivery of goods. In front of these buildings was ample space for all the other buildings required for exhibition purposes, for refreshment rooms, for the music hall and for the accommodation of the expected visitors. And yet, large as was the space provided, the attendance was at times so great that it was inconveniently crowded.

The buildings consisted first of the industrial hall, a very handsome erection in the style of the Spanish Renaissance, 700 feet in length, 360 feet in width, and covering nearly six acres and surmounted by a dome rising 200 feet from the ground. Four towers rose to a height of about 180 feet, and running round, 100 feet up, there was a balcony 400 feet in circumference, and averaging 25 feet wide, designed to form a promenade, from which an excellent view of the exhibition and its surroundings could be



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obtained. This balcony was reached by lifts and spacious staircases in the towers. Under the dome was the grand entrance, approached by an extensive piazza, with a peristyle or colonnade 200 feet long by about 80 feet wide. At each corner of the building, and on the north and south fronts towards the centre were pavilions, about 35 feet square, having four lofty minarets at the angles, terminating in domed roofs. From the industrial hall, a covered avenue 900 feet long by 75 feet wide, led to the machinery hall by a bridge over a public thoroughfare, and thus a continuous covered connection between the two buildings was obtained. The machinery hall was 500 feet long, 340 feet wide, and covered an area of five acres. It was intersected by galleries 15 feet wide, from which the machinery in motion on the floor could be viewed. Its construction was similar to that of the industrial hall. In the grounds outside of main buildings was the grand concert hall. This building was designed in the Venetian style of architecture, circular in shape, and covered by an immense domed roof of steel, which rose in the centre to a height of 80 feet. The internal diameter was 143 feet, and a circular gallery carried on cantilevers, so as to obviate columns in the area, ran around the building which accommodated 4,000 persons.

At the end of the industrial hall, and in a line with its front, and connected by a covered way, stands the new art gallery and museum, which is to be the future home of the art and science collections of the corporation of Glasgow.

During the exhibition it was devoted to the purposes of this section, which aimed at reviewing the art of the nineteenth century by means of a loan collection, embracing the following divisions :—

1. Oil paintings of the 19th century.
2. Water colour paintings, pastels and miniatures of the 19th century.
3. Sculpture and architecture.
4. Works in black and white.
5. Photography.
6. Art objects.
7. Scottish archæology and history.

This collection gathered from the choicest treasures of art to be found in the United Kingdom which were fully placed at the disposal of the executive committee, and selected by men thoroughly competent for the task, was admitted to be the finest ever got together in the British Islands, and formed one of the most attractive features of the whole exhibition. The art gallery itself is worthy of notice. A noble building of vast extent with a central hall open to the roof and richly decorated, and with rooms giving more than space for the collection of 3,000 works of art ranged upon the walls, besides the statuary which occupied the courts and galleries, it is one of the sights of the city, and a monument to the public spirit and business capacity of the citizens. Its history, too, is instructive. The exhibition of 1888 closed with a surplus of £54,000. To this sum was added £70,000 private subscription, and with this amount in hand the building was commenced. Subsequently the work was taken over by the corporation, and completed at a total cost of about £250,000. Besides this a number of pictures have been obtained as the foundation of a collection, but these did not appear in the exhibition.

The buildings outside referred to were the concert hall, six Russian buildings, the Japanese building, the Canadian pavilion, the Irish pavilion, the Scottish agricultural building, the French annex, five large restaurants and tea houses, four smaller ones and several other buildings of minor importance. In the grounds were also the switchback railway and the water chute supplied by the Kelvin river, which runs through the park.

The articles to be shown in these buildings were classified as follows :—

1. Raw material—agricultural and mining.
2. Industrial design and manufactures.
3. Machinery, motive power, electricity and labour-saving appliances in motion.
4. Locomotion and transport.
5. Marine engineering and shipbuilding.
6. Lighting and heating.



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7. Science and scientific instruments, education and music.
8. Sports and sporting appliances.
9. The women's section.
10. Fine art, Scottish history and archaeology section.

This classification, however, did not require that all the articles of one class should be shown together. Each country exhibiting was at liberty to arrange its own exhibits as it thought proper, though in general the scheme above laid down was adhered to, and was strictly carried out as far as the exhibits from the United Kingdom were concerned. The foreign countries which took part in the exhibition were Russia, France, Japan, Austria, Denmark, Persia and Morocco. The British possessions represented were Canada, Queensland, Western Australia, Rhodesia, India and Ceylon.

Of the products shown by foreign countries those of Russia alone correspond to or enter into competition with the productions of Canada. The agricultural productions of Russia, grown over an enormous extent of territory extending from the Baltic to the Caspian, and stretching eastward to the China seas, embracing every variety of climate, from the frost of Archangel to the mild temperature of the Caucasian provinces, are of the most varied character and are capable of almost unlimited expansion. The development of these enormous regions, slow though it is, must have an important bearing upon the future food supply of the civilized world. Grain of all kinds, flax and hemp, cattle and sheep are the chief agricultural productions, and great efforts are now being made in the southern provinces of European Russia to develop a trade in dairy products. Chief also among the resources of Russia are those of her forests. The timber of Russia is in general identical with that of Canada, and is handled with very much the same methods as those which prevail in Canada. The exhibit of Russian timber was very complete, and occupied the whole of one of the six large buildings erected by the Russian government.

Among other products of Russia shown in the agricultural buildings was an extensive and varied display of wool, flax and hemp. Cotton grown in Asiatic Russia was also shown, and of wines made in the southern provinces there was a large display. The mineral exhibit, which is very complete, contains an assortment of the petroleum in all its forms, produced in the oil wells on the south of the Black Sea. As is well known the refined oils from this region enter in the European markets into direct competition with those from America.

In the French court was an excellent collection of grain and other agricultural products, but in other respects the exhibits from this and other foreign countries mentioned are of no special interest to the people of Canada.

The display from India and Ceylon was confined to teas, in which the trade is being vigorously pushed, especially by the government of Ceylon, and to minor articles of ornament, the work of the natives of these countries.

The only colonies represented besides Canada were Western Australia, Queensland and Rhodesia. Their minerals, chiefly gold, were the principal feature of the exhibit of the Australian colonies as well as of Rhodesia. Western Australia had in addition, a very good showing of grain, and wool of the finest quality. The wheat in particular was very fine, the grains being remarkable for size and colour. The barley also was very plump and especially good as regards colour. The specimens of timber from Western Australia, though not of great variety, and not entering into competition with Canadian timber, were very beautiful, resembling mahogany in appearance, durable and capable of receiving a high degree of polish both for furniture and house finishings.

The articles of British manufacture shown in this exhibition, though not as numerous as might have been expected, were fully representative of the various industries carried on in the British Islands, and of the excellence by which their products are distinguished. The extent to which machinery is taking the place of hand labour was also very discernable. To enter into even a general description of these exhibits would be beyond the scope of this report, but there are two portions of the British exhibit to which reference should be made, viz.:—The machinery hall, and the collection of



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models of steamships. The machinery hall, the size of which has already been given, was crowded to its fullest extent with machines of every description, showing the perfection to which labour saving machinery in every trade has been carried. A great deal of space was given to electrical works, both for the production of electric power, and for its application to various uses of lighting, heating and driving machinery, steam engines, locomotives, shipbuilding gear, including every contrivance for cutting, moulding and fitting the great plates and frames used in the construction of modern ships; casemates for batteries both on sea and land, with the great guns to be used in them; enormous shafts and cranks for marine engines, and huge castings of such size and weight that it was a wonder how they were got into the building; printing machines from the simplest to the most complicated; these and many of like nature were side by side with others of more homely character, such as looms, and various contrivances for the saving of labour in the production of articles of domestic use.

Next in interest to the machinery hall came the collection of models of British built steamships, all of recent construction and representing every type of vessel from a steam launch to the largest battle ship. Marvellous skill and ingenuity were shown in these models, which were exact in all their details. The latest examples were of the large cargo carrying description, of moderate speed, requiring but small consumption of coal, but with ample passenger accommodation, and especially remarkable for the comforts provided not only for second class, but also steerage passengers. Of ships of this class, the *Saxonia* of the Cunard Line and the *Tunisian* of the Allan Line may be mentioned as examples.

One remarkable feature of this exhibition was the encouragement given to what are called 'Home Industries.' To this the women's section is specially devoted. In it were found specimens of the various kinds of work in which women can find suitable and profitable employment. Among these may be mentioned all kinds of needle work, lace making, embroidery, knitting, spinning, enamelling, painting on china, &c. To the promotion of these industries many societies, not only in the British Islands, but in foreign countries contributed, and the exhibition as a whole was very extensive and very interesting.

The Irish pavilion, which was a thatched cottage or farmhouse, was mainly devoted to these home industries. The exhibits there showed how much can be done in this direction, and the laces and embroidery made in the homes of the peasantry prove the aptitude of the people for work of this kind. Hand loom weaving of the most elaborate patterns of damask and of home spun cloth was shown here in actual operation. Tweeds also of excellent finish, quality and durability, made in the factories which are springing up in the country were also exhibited, and showing how much is being done by the government to promote the industrial welfare of the people.

Returning now to the Canadian part of the exhibition, your Commissioners report as follows:—

The government of Canada having been invited to take part in the exhibition, and an appropriation to provide for the necessary expenditure having been made by Parliament, the preliminary steps towards carrying out the undertaking were immediately adopted. Correspondence as to space and other particulars was entered into with the executive committee of the exhibition. Mr. W. D. Scott, who was one of the Commissioners at the Paris Exhibition, was deputed to visit Glasgow and carry on the arrangements with the exhibition authorities. It being found that the space available in the main building was altogether inadequate for the intended Canadian exhibit, it was decided to erect a building suitable for the purpose, which would give the necessary additional space. Plans were prepared by Messrs. Walker & Ramsay, of Glasgow, and having been approved of, the contract for the building was let, and in the month of December the work was begun and carried on under the supervision of the architects. This building 180 feet in length and 50 feet in width with proportionate height, and of a style of architecture in keeping with the other buildings of the exhibition, was erected at a cost of \$10,706.66, but from this must be deducted the sum of \$2,044, which was the price agreed upon to be given for the materials used in the building, and handed over to the contractors, Messrs G. & D. Newton, at the close of the exhibition.



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In the meantime while all this preliminary work was being done, all available means were being adopted to bring the exhibition to the notice of those who might be supposed to be interested or likely to take part in it as exhibitors. By means of the Manufacturers' Association, and through the Boards of Trade, communication was held with all the leading manufacturers throughout the Dominion. Circulars were also issued in reply to inquiries, special attention being directed to those branches of manufacture in which a profitable export business might be done. Not only was all necessary information thus afforded, but very liberal terms of assistance were offered by the government to intending exhibitors. The principal rules relating to exhibitors will be found in Appendix A.

A large portion of what may be called the government exhibits were brought direct from the Paris Exhibition as were also the cases, furniture and decorations which had been used there, thus largely reducing the labour and cost of preparing for the present exhibition. Besides thus providing for individual exhibitors, the Department of Agriculture was preparing exhibits of the chief productions of Canada, representing the country as a whole. First and most important of these was the agricultural exhibit in which were shown specimens of all the grains, grasses and horticultural productions grown in the Dominion. Next in importance came the mineral exhibit, containing specimens of all the ores and minerals to be found from the Atlantic to the Pacific, and lastly the forestry exhibit, showing every variety of timber which the country produces.

Fuller reference to these exhibits will be made in the reports of the gentlemen in charge of the different exhibits.

As the time approached for the opening of the exhibition, the staff was completed as follows:—

W. D. Scott, Esq.,	} Commissioners.
Lt.-Col. W. E. O'Brien,	
Hon. A. Boyer,	} Honorary Commissioners.
H. M. Murray, Esq.,	
James Brodie, Esq., secretary.	
A. K. Stewart, Esq., mineral curator.	
Robert Hamilton, Esq., in charge of fruit products.	
J. D. Stewart, Esq., in charge of food products.	
C. W. Thomas, general clerk.	
J. Edgar, foreman.	

As finally arranged the disposition of the exhibits was as follows:—

*Minerals.*—In the Canadian court in the main building was the section of economic minerals under the charge of Mr. A. K. Stewart. This exhibit was a very large and complete one, embracing every variety of economic minerals found in the Dominion, including the valuable display of alluvial gold from the Yukon, from British Columbia, Northern Ontario and other gold-bearing districts occupying nearly one-half of the available space. A full report of this will be found in the appendix.

*Food products.*—The number of inquiries made by importers regarding our food products was enormous. Already our cheese was well and favourably known on the British market, and during the latter part of the exhibition, we distributed fifty choice Canadian cheddars in small boxes of about three ounces each.

Canadian cheese occupies a foremost place in the markets of Great Britain on account of its uniformly choice quality. The position of Canadian butter has improved very much during the past few years. Better transportation facilities, including cold storage on the steamers, has made it possible to place the butter on the British markets without the deterioration which formerly resulted when the butter was sent as ordinary cargo. There is still some irregularity in the quality, which shows that Canadian buttermakers can still further improve their product by adopting more uniform methods of manufacture. The appearance of the butter as regards package and branding is sometimes not as good as it might be. Manufacturers and shippers of butter should give greater attention to this matter in order to have the butter landed



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with a more attractive appearance. The practice of putting white canvas sacks over the boxes is highly commended, and should be generally adopted. There seems to be plenty of room for expansion in the Canadian butter trade, and if the buttermakers succeed in bringing their product up to the high standard which has been reached by the Canadian cheese, they can depend on a very large market.

In canned meats, fruits, vegetables, &c., we believe that there is a bright future in the British markets if the necessary care be taken in the selection, cooking and general style of packing and get-up. In canned fruits the greatest care should be taken by packers in the picking of the fruit at the exact degree of ripening, so that when the tins are opened on this side, the natural flavour of the fruit will be found. Apples, apricots, pears and peaches form the principal articles of consumption in the Glasgow market in this line of goods. Very often the tins are roughly made and the labels are of the cheapest kinds, making it harder to sell than an inferior article put up in attractive form. Canned vegetables are very little known here yet. Instructions as to how to prepare them should be on each package. The market for canned meats, especially for corned beef, mutton, ox tongues and lunch tongues, is always large. Speaking generally Canadian food products hold a very high place with British importers, and the output could be very largely increased if the goods exported were always kept up to the highest possible standard, and put up in attractive form.

*Forestry.*—Canada, on account of its large supply of hard timbers, is in a position to compete with the world in furniture, interior decorations, sanitary wooden ware, musical instruments, &c. Care should, however, be taken to ascertain what the market demands in the matter of styles and mode of finish. Articles suitable to Canadian trade are not suitable for the British markets either in style or finish. Great care however, should be exercised in the manufacture of furniture, desks, &c., and unless the wood is thoroughly aged and seasoned, the natural dampness of this climate always causes considerable difficulty in the working of different parts, such as drawers, &c.

*Musical instruments.*—The exhibit in this line was large and attractive, Canadian manufactures of this class of goods already having a firm footing in this country, where their production is well and favourably known.

*Boots and Shoes.*—This exhibit attracted considerable attention not only from the public but from the trade as well, almost all the goods shown having been bought by the trade, besides which agents were appointed and sample orders booked, which it is hoped will lead to a large increase in the export of these goods.

Leather also came in for its due share of inspection, and all the sole stock shown was sold for export to a large South African house, who expressed a strong hope that it would turn out sufficiently satisfactory to enable them to open up permanent connections with our largest tanners, the purchasers remarking that all things being equal we would certainly get the preference as the feeling towards anything of Canadian production is particularly strong in the market just now. This is a point which should be borne in mind by firms entering into business in this new section, and an endeavour made to give entire satisfaction, especially at the start, as these houses are all being catered to from Britain where their wants are well known and carefully studied.

*Carriages.*—Our exhibit of vehicles was particularly commented upon, and what specially seemed to strike inquirers was the lightness of construction, together with the strength which had not been sacrificed with a view to this lightening. A number of sales were made, and towards the close we received some very satisfactory letters from those who had purchased early in the season. There is no doubt that a large business can be worked up in this line, provided the matter is taken up in a thorough manner by some large representative house. A few slight alterations would have to be made in some particulars, but these would not amount to much. It would, however, be quite useless to attempt to do any business without having permanent show rooms in the larger centres of the districts to be canvassed. The general appearance of the vehicles seems to please, and the prices are looked upon as remarkably reasonable as compared to those ruling here.



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*Wheels.*—Our exhibit of wheels, hubs, spokes, &c., was also considerably and closely examined by carriage builders and wheelwrights, with the result that a number of orders were sent forward, and most dealers complained that these materials which they had been procuring from the United States were not giving satisfaction, and it appeared as if they were getting nothing but the culls, and being charged the price of first-class material.

*Canoes.*—A very comprehensive exhibit of canoes was shown in the Canadian pavilion by three of the principal manufacturers in Canada.

*Agricultural Machinery.*—One-half of the Canadian pavilion was devoted to agricultural implements, which were shown in great variety by the principal manufacturers of these articles. Already the Canadian manufacturers have an established market for this line of goods in Great Britain. In connection with the agricultural machinery were shown in the grounds two large exhibits of windmills and pumps.

*Timber.*—Along one side of the Canadian building were the different specimens of Canada timber, both in the polished state and in the rough. It was very complete and attracted a good deal of attention, especially amongst builders and manufacturers of furniture.

*Natural History.*—Alongside of the timber was shown an exhibit of natural history, which consisted of mounted specimens of the fish and game of Canada.

*Wood Pulp.*—In connection with the timber exhibit were shown wood pulp and paper, woodenware and wood specialties.

In the centre of the Canadian pavilion a very complete exhibit of the agriculture and horticulture of Canada was shown. The agricultural exhibit was arranged by Mr. W. H. Hay, of the Experimental Farm. In it were specimens of all the grains and grasses grown in the Dominion, both in the straw and in the grass. Immediately alongside of the forestry exhibit was a display of fresh fruit on a table 36 feet long by 5 feet wide, and by arranging the fruit with the contrasting sizes and colours we were able to make a good show. Many of these were examined under the impression that each of the 170 plates represented a distinct variety. Mr. Hamilton's report on the fruit exhibit should be read with a good deal of interest by fruit growers and shippers.

In addition to the different exhibits enumerated a great variety of heating appliances and other Canadian manufactures were shown, all of which attracted more or less attention.

From an emigration point of view there can be no doubt that the Canadian exhibit will have most beneficial results.

The exhibit of cereals and fruits and also forestry have been an eye-opener to the British farmer in connection with the agricultural and horticultural exhibits, and emigration agents were constantly on hand for the distribution of pamphlets on different subjects. The Ontario department had a constant supply of pamphlets on hand, referring more particularly to the advantages of Canada as a home for settlers, and we issued special pamphlets on horticulture, agriculture, forestry, minerals, manufactures and wood pulp, and in addition to these had a cloth bound book giving trade statistics, &c., regarding Canada. These volumes were very much sought after by the business people of Great Britain. During the course of the exhibition nearly 300,000 emigration pamphlets were judiciously disposed of by the agents of the department of the Interior. Many interesting interviews with agriculturists and others have been held, from which good results may confidently be hoped for. On the whole we are convinced that this exhibition should do much to dissipate the old idea that Canada is situated in the Arctic Regions—a country of frost and snow—which has hitherto been more or less present in the minds of the British public, and should materially assist the efforts of the government agents in sending to Canada an increasing number of desirable emigrants.

It may be here interesting to note the space occupied in the exhibition generally by the different countries exhibiting. The figures are as follows:—



The exhibition buildings and grounds covered almost 100 acres, and the exhibiting area, after making the necessary allowances for avenues and passages, amounted approximately, to 437,590 square feet, distributed as follows ;—

Industrial and machinery halls.....	227,314
Outside buildings—	
	Sq. feet.
Agricultural hall.....	4,737
Heating and lighting hall.....	7,660
Model farm.....	21,600— 33,997
Outside space allotted to governments and individuals...	96,279
Fine art Galleries (approx.).....	80,000
Grand total exhibiting area.....	437,590

Excluding the Fine Art Galleries, which were reserved exclusively for the fine art and Scottish history and archæology section, the exhibiting space in the building ran up to 357,590 sq. feet, which was apportioned as shown below :—

1. British exhibits.....	226,171
2. Colonial exhibits.....	49,875
3. Foreign exhibits.....	71,540
4. Women's industries.....	10,000
	357,590

To foreign and colonial exhibits the following allotments had been made :—

Colonial.	Inside sq. ft.	Outside sq. ft.
Canada.....	12,900	12,000
Queensland.....	8,050	
Western Australia.....	10,925	2,700
India.....	2,300	
British South Africa.....	1,000	
	35,175	14,700
		35,175
Total.....		49,875
Foreign.		
France.....	20,600	2,400
Russia.....	11,131	29,705
Japan.....		5,000
Morocco.....	900	
Austria.....	504	
Denmark.....	875	
Persia.....	425	
	34,435	37,105
		34,435
Total.....		71,540
Add Colonial.....		49,875
Grand Total and Foreign.....		121,415

The total receipts of the exhibition were.....	£ 408,237
Total expenditure.....	343,237
Leaving a profit of.....	£ 65,000



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The formal opening of the exhibition took place on May 2, a week earlier than had been originally intended. The alteration of the date caused much inconvenience, and it was only by great efforts that the buildings and ground were ready in time. Many of the exhibitors were altogether unprepared, but the Canadian Court and building were in readiness, though part of the goods intended for exhibition did not arrive till some time afterwards. The exhibition was opened by the Duchess of Fife, the eldest daughter of the King, who came in state accompanied by her husband. The Royal party afterwards went through the exhibition and showed particular interest in the Canadian portion.

During the summer a number of influential societies and associations held their meetings in Glasgow, and thus the exhibition was visited by many persons who might otherwise not have seen it. This has been of special advantage to Canada, as its products by these means have been brought to the notice of people whose opinions are of value, and who are able, as they also seem willing, to promote our interests in a variety of ways. Among the societies may be mentioned the International Societies of Naval Architects, of Engineers, of Architects, and the British Association for the advancement of science. The celebration of the four hundred and fiftieth anniversary of the founding of the University of Glasgow, which also took place early in the summer, brought to the city and to the exhibition, a great number of distinguished men from all parts of the world. The state visit of the Lord Mayor of London, whose name is enrolled among the visitors to the Canadian section, was another occasion on which a number of influential people were brought to the exhibition. In this connection mention should be made, among other distinguished visitors, of Lord Strathcona, High Commissioner for Canada, Sir Louis Davies, Minister of Marine and Fisheries, the Hon. Sidney Fisher, Minister of Agriculture, who was accompanied by Professor Robertson, the Hon. Mr. Blair, Minister of Railways, the Hon. Mr. Fielding, Minister of Finance, and the Hon. Mr. Mills, Minister of Justice, Lord Dufferin and Lord Aberdeen, two ex-Governors of Canada, were also visitors to the Canadian courts.

Having been treated with great hospitality and attention by the Corporation of Glasgow, the authorities and officials of the exhibition, by the Commissioners of several of the countries exhibiting, as well as by other public bodies, your Commissioners felt it their duty to make some return for the courtesies received. Prior also to the official opening, the exhibition was visited by a delegation representing the press of the United Kingdom, who made a careful survey of the exhibits as far as completed, and by the reports they subsequently published, attracted much attention to the undertaking, and particularly to the colonial products, those of Canada being specially commended. To these gentlemen on their visit to the Canadian section, light refreshments were offered, and a brief address was given by the Lord Provost. Subsequently advantage was taken of the presence of the Minister of Agriculture to give a reception in the Canadian pavilion, to which were invited the members of the corporation, the Commissioners of the exhibition, the officials, and a number of gentlemen interested in the trade of Canada.

We have the honour to be, sir,

Your obedient servants,

W. D. SCOTT,

W. E. O'BRIEN,

*Commissioners.*



## APPENDIX A.

*Opening and close of exhibition.*—The exhibition will open on May 1 and close on October 31, 1901.

*Applications for space.*—Forms of application for space must be returned to the Canadian Commission, Department of Agriculture, Ottawa, as early as possible, and in any case not later than January 15, 1901. All applications will be considered by the Commission, but owing to the limited amount of space at their disposal they cannot undertake to allot the whole or any part of the space applied for—their object being to secure the best possible exhibition of Canadian goods in each group. There will be no charge for space to exhibitors.

*Date of reception of exhibits.*—Accepted exhibits, packed in strong cases, must be delivered, at the exhibitors' expense, at the seaboard, not later than March 15, 1901, to be shipped to Glasgow by the Canadian Commission free of charge.

*Prohibition of transfer of space or substitution of exhibits.*—No exhibitor will be permitted to transfer his allotment, or to allow any other than his own duly accepted exhibits to be placed thereon. All goods must be exhibited in the name of the person or firm who signed the form of application.

*Forfeiture of allotted space.*—Space not occupied 30 days previous to the opening of the exhibition will be forfeited, and allotted at the discretion of the Commission.

## EXHIBITS.

*Position of exhibits.*—Exhibitors will be required to place their exhibits so as to contribute as much as possible to the general effect. The whole arrangement relating to show cases, signs, notices, and all similar matter, will be subject to instructions issued by the Commission.

*Maximum height of stands.*—No stand, including signboard, may exceed 12 feet in height, without special permission.

*Uniformity of decoration.*—In order to insure uniformity of decoration and general effect, no exhibitor will be allowed to put up flags, banners, or any other kind of decoration, without special permission from the Commission.

*Railing off exhibits.*—Exhibitors may place railings around their stands, subject to approval. In every instance the railings must be within the space allotted.

*Partitions.*—No partitions may be erected between stands without permission from the Commission, nor anything put up to interfere with the sight of adjoining stands, or to impede the general view in all directions throughout the building.

*Sign and name boards.*—No sign or name board may be placed in such a manner as to interfere with the vista, or otherwise than parallel with the front of the stand. All signs placed over show cases or stands must be uniform in style. Instructions upon this will be issued later, and the maximum dimensions will be specified.

*Conveyance expense.*—The Commission will bear the cost of transportation of all exhibits from the ports of Montreal, Quebec, Halifax, St. John and Portland direct to Glasgow by steamer.

*Supervision of arrival, installation and departure of exhibits.*—In the absence of the exhibitor or his accredited representative, the Commission will receive, unpack and install the exhibits in Glasgow, provide the necessary platforms, counters and other



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fixtures, and show cases where in their opinion the nature of the exhibit requires these. Where carpets are considered necessary they will be charged by the Commission and charged to the exhibitor according to the space occupied. The Commission will also re-pack and return, free of charge, to the above mentioned ports such exhibits as are not disposed of in Glasgow. Exhibitors are expected to dispose in Glasgow of their exhibits when these have a commercial value, only valuable collections or objects of special character being granted free return transportation.

*Pricing goods.*—Exhibitors are particularly requested to mark their goods with the home selling prices, for the information of the public.

*Placards and handbills.*—No printed or written placards, handbills, or descriptions may be displayed or distributed without the permission of the Commission. Such permission may be withdrawn at any time.

*Dangerous and unhealthy exhibits.*—Dangerous articles, especially those of an explosive nature, are excluded. Percussion caps, fireworks, matches and similar articles will only be accepted in the form of imitations, and on condition that they contain no inflammable matter.

Exhibitors of unhealthy products, or of products which may cause inconvenience, must conform at all times to any measures which may be prescribed by the Commission in the interest of public health and safety.

Spirits of alcohols, oils and essences, corrosive substances, and such as are liable to injure other exhibits or inconvenience the public, will only be accepted provided they are contained in such vessels of convenient size, shape and material as may be approved by the Commission.

*Unsuitable exhibits.*—The Commission reserve the right to remove at any time any article which they may deem objectionable or unsuitable for exhibition.

*Opening and closing exhibits.*—All show cases, machinery and exhibits generally, must be uncovered and properly cleaned each day previous to the hour at which the exhibition is open to the public. They must not be again covered until the closing of the building.

*Attendance of exhibitors.*—All exhibits must be viewed on every day on which the exhibition is open. If exhibitors or their representatives do not wish to be in attendance at the exhibition, the Commission will be prepared to undertake the superintendence of the exhibits, but in that event the Commission will not be responsible for any loss, damage, or accident, however occasioned.

*Removal of exhibits.* No exhibit may be removed before the close of the exposition without special permission.

## CASES.

*Labels.* All cases containing goods for exhibition must bear special labels, inside as well as outside, which will be supplied to exhibitors in due course.

*Unpacking of cases.* All cases must be unpacked on arrival. Any cases remaining unpacked fifteen days prior to the opening of the exhibition will be liable to the custom house, but the Commission will not be responsible for any damage which may arise, or any expense which may be incurred in consequence of such removal.

*Storage of empties.* The Commission will make arrangements for the collection, storage, and re-delivery of cases. Cases must be distinctly marked by the exhibitor for the purpose of identification.

## GENERAL.

*Freight and duties.* Information regarding any reduction of freight charges, duties, &c., will be issued by the commission from time to time.



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*Customs' duties, forwarding of goods.* The buildings of the exhibition will be treated as bonded warehouses. Exhibitors not taking advantage of the Commission's shipment may transit their goods through any forwarding agent, or direct to the exhibition at their own expense. Goods will be dealt with according to the ordinary regulations in force in bonded warehouses, by a special customs service connected with the exhibition. Goods for exhibition only will not be liable to duty, but on goods removed from bond the usual rates will have to be paid by the purchaser.

*Copyright.* No work of art or object exhibited in the buildings or grounds may be drawn, copied, or reproduced in any form whatsoever, without the exhibitor's written permission.

The Commission may, however, allow general views to be taken and reproduced.

*Compliance with instructions.* Exhibitors, their representatives and workmen must comply with all instructions issued by the Commission.

*Protection of exhibits.* The Commission will take all precautions for the protection of exhibits, but the Commission will not be held responsible for loss or damage however caused. It is left to the exhibitor to insure their goods should they desire to do so.

*Liability of exhibitors.* Every exhibitor shows at his own risk as respects wear and tear, damage from exposure, breakage, accident in packing, transportation, or from any other cause, and it is a condition that he hold the Commission harmless, and indemnify it against any legal proceedings arising from any injury or accident caused or occasioned by his machinery or other article exhibited by him, or from any action which it may be necessary to take in enforcing compliance with the regulations. The above rule applies to companies and firms as well as to individual exhibitors.

*Co-operation of exhibitors regarding regulations.* As the above regulations are laid down solely in the interests of the general body of exhibitors, and to insure the satisfactory working of the Canadian section, the Commission trust that the exhibitors generally will co-operate in carrying them into effect.

*Alteration of regulations.* These regulations are subject to alteration and amplification from time to time.

*Infringement of regulations.* The infringement of any of the above regulations, or any of the regulations of the Glasgow International Exhibition Association will subject the exhibitor to the forfeiture of his space, and to the removal of his goods from the building, without any liability attaching to the executive, or to the Commission, or to their representative, in any way whatsoever, in consequence of such removal. The question whether any such regulations have been infringed, and whether the exhibitors' space has been forfeited, and whether his goods shall be removed, is to be determined according to the sole discretion of the Commission.



## APPENDIX B.

The following is a list of the chief officers and chairmen of Committees by whom the affairs of the exhibition were carried on :—

President :—The Right Hon. The Lord Blythswood of Blythswood.

Vice Presidents :—Sir James King, Bart., Sir John Muir, Bart., Sir James Bell, Bart., and Hon. Sir David Richmond.

Chairman of the Executive Council :—The Hon. The Lord Provost of Glasgow (Samuel Chisholm, Esq.)

Vice Chairmen of the Executive Council :—Mr. John Shearer and Mr. James Hunter Dickson.

Honorary Secretary of the Association :—Sir James D. Marwick, LL.D., Town Clerk, City Chambers, Glasgow.

General Manager and Secretary :—Mr. H. W. Hedley, 36 St. Vincent St.

Architect :—Mr. James Miller, I.A.

Engineer and Electrician :—Mr. Thos. Young, M.I.C.E.

*London Honorary Consultative Committee :—*

Chairman :—The Right Hon. The Lord Mayor.

Vice Chairman :—Sir George Hayter Chubb.

Honorary Secretaries :—Mr. W. J. Soulsby, C.B., and Mr. G. Gaskell Exton, M.I. M.E. The Mansion House, London.

*Fine Art, Scottish History and Archaeology Section :—*

President :—The Right Hon. The Lord Balfour of Burleigh, P.C.

*The Women's Section :—*

President and Convener :—The Right Hon. The Lady Blythswood of Blythswood.

## REPORT ON THE MINERAL SECTION AT THE GLASGOW INTERNATIONAL EXHIBITION.

The Canadian Mineral exhibit shown at the Glasgow Exhibition (with the exception of a few additions) being the same as that sent to Paris last year, it is unnecessary to describe the collection itself. Apart from a few unimportant breakages the exhibits reached Glasgow in good condition, and were all placed ready for public inspection by the day of the opening ceremony. The work of labelling the specimens took considerable time, as it was impossible to continue it when many visitors were in the court, but it was completed by the first of June, and the checking was continued whenever possible. The final result was gratifying, considering the complex nature of the collection, only one specimen of importance, a large pulpstone, having been lost in transit from Paris. Notes on the exhibits will be found in the official catalogue used as a check-list. As to the arrangement, the same was made to follow the system adopted at Paris in almost every detail. Larger and higher open stands were, however, erected, so as to make a more attractive display of the big specimens of gold, silver, copper and iron ores, and of building-stones, and the space being favourable it was possible to follow the order of the catalogue very closely. It was also found possible to display several new exhibits sent from Canada, and some sent by people in Scotland interested in the Canadian mining industry. Owing to lack of wall space it was not feasible to display all the maps and



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photographs, but an effort was made to give an attractive appearance to the exhibit both as regarded detailed arrangement and general effect.

Regarding the interest taken in the exhibit by the general public, it can only be stated that it was unabated during the whole course of the exhibition. So much was this the case that on many days it was quite impossible to keep pace with inquiries made and attend to routine work as well. The most gratifying feature of this, however, was that (not counting the undoubted interest taken by all classes, and the good impression of the resources of Canada imprinted on the mind of casual visitors) a large percentage of the inquiries made came from business people genuinely anxious to establish trade with the Dominion if at all possible for them to do so. I append a list of some of these. While great interest was taken in all the exhibits, the following attracted the most attention from that class of visitor, and will probably prove to have been of the most practical value:—

*Corundum.*—No exhibit was perhaps inquired into as much as this, the only one represented by a special agent. From the continual visits made by users of abrasive materials in factories of all kinds, and the information to be gleaned from them, it appears evident that Canadian corundum and manufactures of corundum need only systematic advertisement in order to find a ready and rapidly increasing market. At works in which emery was formerly extensively used, it is to a very great extent being replaced by the carborundum manufactured at Niagara, N. Y. It should, however, be possible to supply genuine Canadian corundum at a lower figure. In the Scotch granite trade alone a large business might be done. The centre of this is at Aberdeen, where emery for polishing purposes sells at about 18s. per cwt., but where it is now little used since the introduction of carborundum from the United States some three years ago. The latter sells at 6½d. per lb. Emery is still used extensively at engineering works of all kinds, though carborundum is rapidly replacing it. At the present time many works are testing Canada corundum wheels and grit, and should the Canadian producers only push their article extensively, they have every prospect of eventually capturing the British market. As carborundum is, however, well advertised, and its competition is sure to be keen, they would do well to see that no inferior grades of wheels are put on the market as ‘Canada Corundum.’

*Infusorial Earth.*—The producing firms in the Maritime provinces would find it worth while to study the increasing market for this in the United Kingdom. Deposits are mined in Scotland and Ireland, but large quantities are imported from Germany, and a small but increasing amount from Australia. Its use for the manufacture of dynamites is not on the increase, but it is in great demand for insulating purposes of all kinds, boiler covering, refrigerating chambers, firebricks for steamers, &c. New uses for it are being continually found. The demand is for a white colour, light weight and absorbent properties.

*Mica.*—Canadian mica firms might find it to their interest to look into the market for mica lamp chimneys and other manufactures of mica used in Great Britain. One London firm alone imports from seven to eight million lamp chimneys annually from Germany. Two of these 6-in. chimneys have a weight of 75 grains, 412,160 going to the ton. The importing firm purchase at a cost of £721 per ton, and resell at £1,201 per ton. It may be added that the demand for mica products of this kind is rapidly increasing. The Board of Trade returns for the past five years show that Madras and Bengal lead in the shipments of mica to the United Kingdom; while the United States and Ceylon rank before Canada, both as regards shipments of sheet mica, ground mica, and mica pulp. The importation from other countries is small. The chief market is for electrical purposes.

*Gypsum.*—The market for this appears to be principally for the pure variety, selenite. Owners of deposits in Nova Scotia and New Brunswick would do well to make trial shipments to Scotland, as large orders could be obtained if large quantities could be supplied regularly.



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*Talc.*—There is an increasing demand for this in the waterproofing and similar trades. The imports at present come from France, Italy and Austria (ground) though a small quantity is produced in Ireland.

*Graphite.*—The principal market for plumbago seems to be for making moulders' blacking and lubricants for heavy machinery. Only the purest product is imported, though it is often afterwards made up with infusorial earth. As the supply from Ceylon is on the decrease the Canadian graphite could now be pushed to advantage.

*Coal.*—It is interesting to note that the repeated inquiries made at the Paris Exhibition *re* the possibility of shipping coal from Nova Scotia to the continent in competition with British and Belgian coal were also frequent at Glasgow. Conversation with continental visitors lent colour to the belief that although the famine prices of last year cannot often be counted on still an important trade to France might be established if Nova Scotia coal owners wished to compete. The market in France is largely in the hands of middlemen of all kinds, who make large profits by supplying that country with what it cannot itself produce—coal in sufficient quantities to furnish the naval authorities and the industrial and domestic consumers—and who procure this deficiency from England, Wales and Belgium, and last year made several importations from the United States. This is a market which is bound to last, but Canadian shippers would have to be in a position to fill large orders at any season of the year.

*Granite.*—The exhibits of New Brunswick granite were very much admired by visiting architects and building contractors. There appears to be a possibility, (if the present freight could be slightly lowered) that competition with the Norwegian granite now finding a market in the United Kingdom might be feasible. Aberdeen alone imports from 12 to 13,000 tons annually from Norway, and the business is an established one, having a permanent head office in Glasgow. The freight rate from Norway to the Eastern sea-board is 10s. In the event of the New Brunswick granite competing it would have to be handled at Liverpool or Glasgow, whether in the rough or polished. A considerable quantity of United States granite found a market at Liverpool this year.

*Molybdenite.*—This mineral (owing to its coming into use in the manufacture of steel) is securing a wide market—which owners of deposits in Canada would do well to look into—both in Great Britain and in Germany.

Apart from the above, numerous inquiries were made as to possibility of securing shipments of Labradorite and sodalite (for ornamental and decorative purposes), mineral pigments, manganese ores and high grade mattes, silver ores and blende. In most cases existing transportation rates seem to render an export trade in any of these impossible at the present time.

Generally speaking, what seems to be the most needed, if exportable Canadian mineral products are to compete over here with similar products from other countries is that Canadian firms and mine owners should establish agencies in the several principal seaport towns; which would be more advisable than a single agency for the British Isles. In many cases the sole difficulty of creating or increasing business (that of freight rates) might possibly be surmounted. British buyers purchase what they need in the markets of the world, and in order to compete the Canadian producers will have to be prepared to fill orders quickly the year round, and realize the opportunities which the British market opens to them. To send a sample to an exhibition is not all that is necessary, but the sample should be backed up by a statement showing at what price the product in question can be delivered at any principal port, who are the agents for same, and the quantities which can be contracted for. Many inquirers at the exhibition, who were placed in direct communication with owners of exhibits, complained that even after considerable correspondence they were not furnished by the latter with sufficient information of this character.

During the whole course of the exhibition the demands for specimens of all kinds were incessant. None of these could of course be complied with, but small collections of scraps from specimens broken in transit from Paris were made up for the office of the High Commissioner, London, and for the Canadian Agencies at Glasgow and Cardiff.



Small samples of corundum grit, infusorial earth, &c., were given to business people for the purpose of making tests, when the quantity exhibited by any one firm rendered this possible. A great many more samples could have been similarly utilized. It would not be possible to draw on any of the present exhibits any more for this purpose, but extra samples, if sent to any future exhibition would prove of value to both importing firms in Great Britain and interested parties in Canada.

Generally speaking, the literature on hand for distribution at the Canadian court was acknowledged by all visitors to be the most detailed and useful of that of any country at the exhibition. In this respect Canada can without any doubt be considered as having scored first place. However attention might be drawn to the fact that in order to make known the undoubted progress of the mining industry in Canada, in such a way as to attract the investing classes, a more up to date system of collecting statistics will have to be adopted. All other British possessions publish monthly (not yearly) statements of their mineral output, which statements are cabled to the British press, and are read by people who invest in mining companies, but have no time to study mining literature. There is little room for doubt that publishing monthly statements of this kind would lead to much more British capital finding its way to Canada.

The exhibits of gold, silver, copper and iron ores attracted a great deal of attention from people interested in mining operations, the immense quantity and variety of specimens being greatly commented on. Particular interest was taken in the iron ores on account of shipments of pig iron from Cape Breton having reached the Glasgow market. A study of the collection led to several people going out to Canada either to represent capital or to settle. Among those two mining engineers were sent out by British syndicates—Mr. F. B. Stuart to investigate the lead situation in British Columbia, and the opening for a lead smelter and refinery; and Mr. G. L. Mackenzie to look into the possibilities of copper production in the various provinces.

The exhibits of placer gold and rich free gold quartz drew large crowds around the gold cases, and undoubtedly caused many visitors to study other parts of the collection which they would otherwise have passed over. As gold exhibits are a great attraction to all classes, it would be well to rather increase this portion of the exhibit if the collection is to be shown again at an exhibition. New exhibits of coal would also be needed, and it would be well to procure specimens from new mining districts not at present represented. A complete new set of labels would also be required, also of index maps, and all specimens would need renumbering, as frequent transit causes obliteration. By taking each class of mineral separately a simpler system of enumeration might be devised than that of the catalogue.

The packing up of the collection was completed by December 12, and (with the exception of two exhibits) all the cases were shipped to London for storage at the Imperial Institute or the Marylebone Goods Yard. Owing to the fine collection of transparencies having arrived at Glasgow either completely broken or badly cracked, it was found impossible to re-ship even the ones the least damaged, and they were presented to the University of Glasgow.

List of principal business visitors (correspondence with whom might lead to direct business with Canadian firms):—

#### CORUNDUM.

- R. Luke (Luke & Spencer Ltd., emery wheel manfrs.) Broadheath, Lancas.
- Messrs. Stevenson, contractors for the art galleries, Glasgow.
- J. Hastie, jr., Dumbarton, N.B.
- J. H. Whiteman, representative at Glasgow of the 'London Mining Journal.'
- Thos. Rugely, Bury, Lancashire.
- D. Patrick, bee hive spindle works, Glasgow.
- T. S. Peckett, tower works, Lancaster St., Sheffield.
- Wm. McGregor, Scottish steel grit works, Airdrie, Nr. Glasgow.
- Berg & Sons, Ltd., 22 Billiter St., London, E.C.
- J. Strutters, 128 Lister St., Glasgow.



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J. Rust, 31 Mount St., Aberdeen.

J. B. Hardman (Garnes, Telford & Hardman) Cobden St., Pendleton, Nr. Manc.

J. Mitchell, Craven House, Drury Lane, London.

W. Brand, Cairnhill, Busby.

Stewart & Henderson, Murrayfield, N.B.

W. H. Finlay, 6 Landscape Terrace, Coleraine.

D. Gallaher (Smith & Coventry) Ordsal Lane, Manchester.

John Kennedy & Sons, Coleraine.

J. Wood (Lancashire Watch Co., Ltd.) Prescott, Lancashire.

W. Gibson (W. Gibson & Co.) Jordan Lane, Morningside, Edinburgh.

J. Sloan, 11 Maitland Avenue, Langside, Glasgow.

W. H. Gibson, 53 Hollins Lane, Sowerby Bridge.

E. R. Canning, Gt. Hampton Street, Birmingham.

## INFUSORIAL EARTH.

J. B. Nelson (Nelson & Co.) 5 Ainsworth Avenue, Belfast.

D. A. MacCallum, Managing Director British Diatomite Co., Ltd., 93 Hope St., Glasgow.

Wm. Watson, 5 Royal Exchange Square, Glasgow.

Geo. Semple, 34 S. Kinning Place, Glasgow.

J. C. Macraith, Liffey Chemical Works, Mid Abbey Street, Dublin.

Berg & Sons, Ltd., 22 Billiter Street, London, E.C.

## ALSO THE FOLLOWING.

J. B. Mercer, Broughton Copper Co., Ltd., Manchester (copper ores, copper matte, &c.)

J. A. Sutherland, Drysalter, 59 Renfield St., Glasgow (mineral pigments, salt and brines).

H. Stanley Atherton, 7 Brazenose St., Manchester, (mercury ores).

J. Wood, 18 Percy St., Bellahouston, Glasgow, (graphite).

W. Christie, Pipe Manufacturer, Leith, (gypsum).

I. Clarkson, Clarkson & Co., Effingham Memorial Works, Rotherham, (granite and marble).

A. Boissiere, Ingenieur des Mines, Cie Parisienne du Gaz, 124 Boulevard Magenta, Paris (Coal Importation from N.S.)

Thos. Burrell of Pickering's, Ltd., Stockton on Tees (asbestos),

A. Martin, 14 Dobbie's Loan, Glasgow, (granite and marble)

R. Corsi, C.A., 62a St. Vincent St., Glasgow, (mineral pigments, selenite, infusorial earth, mica—general agencies).

E. S. Dally, 62 Albion St., Brook Lane, Manchester, (dolomite gypsum, talc, baryta).

W. Fyfe, Prevost Blaikie's Quay, Aberdeen, (granite and Labradorite).

A. W. R. Bell, 7 Abington St., Glasgow,

C. J. Lake, F.S.L., 25 Bucklersbury, London, E.C., (Granite and Labradorite.)

F. H. Smith, 46 Cambridge Rd., Seaforth, Liverpool, (British Mining Machinery for Canadian mines).

C. Cottis, Archminedean Iron Works, Epping, Essex, (Importation of Canadian pig iron),

Geo. Lawson, contractor for New Glasgow Water Works, lighthouses, docks, &c. (Importation of St. George, N.B., granite).

Wm. Tennant, of the Coal Exchange, Manchester, (Importation of Canadian pig iron).

T. Tenurch, 19 Bridge St., Sydney, N.S.W., (Pacific Coast coal for transpacific steamship trade).

Wm. Watson, 5 Royal Exchange Sq., Glasgow, (mica and asbestos).



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G. Semple, 34 S. Kinning Place, Glasgow (talc).

G. Lister, Sutcliffe, Architect, Stone Slack, Manchester (granite, Labradorite and sodalite).

D. Colville, director of Dalzell Iron and Steel Works, Motherwell, Glasgow, (Importation of N.S. pig iron).

Geo. Walton & Co.; Ltd., 35 Bucelish St., Glasgow, (mica).

D. Young, 168 Grovebank Place, Glasgow, (mineral paints).

J. W. Learnworth, 15 Port Hopetown, Edinburgh, (graphite)

J. B. Nelson & Co., 5 Ainsworth Avenue, Belfast, (talc, mica and asbestos).

C. Harrison, Drysalter, Show Lane, London, E.C. (mineral paints, brines).

W. B. Carrick, A.M.I.E.E., Paisley, (Asbestos, mica, talc and tripolite).

Johnson & Sons, Smelting Works, Ltd., Finsbury, London, (Importation of high grades ores and matte).

G. Smith, Faludhouse St., Glasgow, (graphite).

W. F. McMaster, Ardeer Iron Works, (Importation of N.S. pig iron).

R. Sanderson, builder, Mt. Florida, Glasgow, (N.B. granite).

Capt. H. Cock, Dashwood House, New Bond St., London, (Molybdenite).

T. R. Breckon, 32 Norfolk St., Sunderland, (gypsum).

Wm. Muir, Beith, N.B., (New Brunswick granite).

R. Tholfall, F.R.S., of Albright & Wilson, Phosphorous and Chemical Works, Oldbury, Nr. Birmingham, (Importation of high grade blende ores).

(Selected from a list of over 300 names).

(Sgd.) A. K. STUART.

## REPORT OF CANADIAN FRUIT EXHIBIT AT THE GLASGOW INTERNATIONAL EXHIBITION.

Now that the Glasgow International Exhibition has come to an end, I may say without exaggeration, that our exhibit was a decided success. The praise accorded by the public was warm and unstinted, and there can be no reasonable doubt, that it was genuine and well merited. This is true, especially of fruit display. It was frequently renewed, and thus was continually kept fresh and bright, and it undoubtedly served to dispel many of the ill-founded notions, as to the climate of Canada. Whether we will allow it or not, the fact is that there is nothing produced in Canada that so well serves to give a true idea of its fine wholesome climate as its fruits. Its magnificent mineralogical display, together with its grain and dairy products might have been produced in such a climate as so many of the visitors to the Glasgow Exhibition believe it to be, but its grapes, peaches, pears, quinces, plums and apples told another story. 'I would not have believed it'. 'It can't be possible that these were grown in Canada'. 'They must have been grown in hothouses or on walls'. These and similar expressions were repeated hundreds of times daily, and had to be met, combatted and overthrown. It will be news to many in Canada, perhaps even amongst fruit growers, that our fine Canadian fruit, is still sold in most of the shops that sell fruit as 'American' notwithstanding the energetic efforts of the Canadian fruit and produce inspector in Glasgow.

The well-maintained display of Canadian fruit at the Glasgow Exhibition has certainly done much to set Canada right, at all events as far as its climate is concerned, in the minds of the eleven million visitors, almost all of whom examined the fruit.

Many of the more important visitors, landed proprietors, fruit growers, fruit dealers, and others, declared that they had never seen a better display of apples anywhere than the Canadian exhibit.

There was no break in the interest from the beginning to the close, and when it is known that from morning till night, there was a never failing stream of inquirers de-



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siring information about the different kinds of apples, the localities where they were grown, the growers, the character and condition of the soil, the manner of growing, pruning, combatting insects and other enemies, it will be felt that the position of the superintendent was no sinecure. Fruit dealers, as well as fruit consumers, observing the cleanness of the fruit and its freedom from bruises, were anxious to know how it was, and experimental farms and their work, government encouragement, spraying, better methods of packing, cold storage and kindred subjects were explained. Fruit dealers, both importers and the more extensive retailers were interested in the various fruit packages. The fine condition in which the Canadian fruit turned out was surprising, especially when compared with the best barrelled apples, and naturally led to a desire to examine the cases and discuss the merits of different methods of packing. A few cases of fruit were in consequence kept in hand for inspection, and also for sampling. This was necessary, inasmuch as there was a general feeling that Canadian apples were not as good as American apples of the same variety. Tasting convinced the most prejudiced persons. Besides this small lots were presented to several parties of importance, who all highly appreciated the compliment. Some of the most complimentary remarks made by visitors, were on the remarkable keeping quality of many of the varieties of apples. It is needless to say that while much was due to the careful handling of the fruit, gathering, packing, &c., very much was due to the admirable system of cold storage in which the apples were kept.

Three points were especially noted, and commented on, viz., gathering before the fruit was over ripe, careful handling to avoid bruising, and packing so as to avoid contact of the fruit. These, together with the perfect cold storage seem to make it possible to keep apples of sufficiently firm character indefinitely, at all events for over twelve months, so that many householders who used apples in considerable quantity were constrained to say that there seemed to be no good reason why they should not be supplied with fine apples up to July at least.

The number of varieties of Canadian apples that are well known in Great Britain is very limited. There are ten or twelve well known sorts, and perhaps ten or twelve more known to a few dealers and consumers, so that it is not surprising that the sixty-three sorts on exhibition appeared to be quite a large collection. Of the sixty-three varieties placed on the tables at the opening, there remained over thirty at the close. Some of them were comparatively new with us. The Central Experimental Farm sent two that attracted a good deal of attention. The 'Malinda' a yellow apple of medium size and quality, retained its quality to the last, so did the 'Lawyer' and the 'Salome'. The 'Lawyer' faded a little so as to resemble in colour a bright red tomato. It was better in quality than 'Malinda'. 'Salome' kept its colour well and was thought by many to be better in quality than either of the two just mentioned. Two very bright seedlings sent by Louis Woolverton proved to be remarkable keepers, and were of good quality. Their only drawback was, that they are small. There were some very good ones, of several kinds, sent from Nova Scotia, unnamed, that were unknown to me. These had probably been exhibited at one of the fall shows, and had then been carefully packed and sent on for the Glasgow Exhibition. The names were all placed together in an envelope.

Mr. Cecil Newman, Lachine Rapids, sent some very nice seedlings, besides some well known sorts. Miss Fraser, King's Port Farm, Lachine Rapids, and Mr. Dunn, of the same address, sent the 'La Salle,' a beautiful apple of good size and fine keeping quality, that was in perfect condition at the close of the exhibition.

Amongst the soft fine fleshed apples that kept till the close was the 'Blenheim Orange,' and curiously the 'Wealthy,' held till within a few days of the close. Among sorts that are little known on this side was one sent by R. W. Shepherd, Montreal, viz., the so-called 'Winter St. Lawrence, in reality the 'Rambour Barré' of the French and well known under this name in St. Helaire. This was perhaps the handsomest apple shown. It was white fleshed, crisp and juicy, besides being well flavoured and was among the last on the table.

The variety that the Scotch people spoke most highly of was the Newton Pippin. The English spoke of and praised the 'Cox's Orange' and the 'Blenheim Orange,'



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though some seemed to think the 'Old Ribston' the best of all apples. It is perhaps worthy of remark that when allowed to sample five or six varieties without the names, neither one nor the other recognized their favourites, and frequently gave the preference to the 'Northern Spy.'

Other things being equal, the almost universal preference is given to a firm, rather hard apple, and except amongst a limited number of retailers, for a medium sized apple. A glowing tint is the next attractive feature like the colour of the King of Tomkins Co. for instance, but handsome fruit of fair quality and without bruises or other blemish will almost always sell well heré.

People never ceased to admire the fine condition and handsome appearance of the Canadian apples, and to ask 'why can't we always have apples like these?'

In barrelled apples not one escapes—they are all bruised from top to bottom. Householders, many of them declare that they rarely are able to use more than half the apples in a barrel. The bruised fruit has already begun to rot when received, and in spite of all their care, they often lose up to the half and over. This is a serious matter for them.

Given a moderate sized package, say 40 lbs. of perfectly sound fruit of fair quality, and the consumption may be indefinitely increased. The Wilson ventilated case, made in London, Ont., seems to about fill the bill.

The fruit was examined and praised by many illustrious visitors, amongst others, first comes our own Princess Louise, Duchess of Fife, the King's most charming daughter, and her husband. We had also the Empress Eugenie, besides many others of exalted rank, many of whom signed our register and expressed the pleasure the exhibit gave them.

To sum up—the Canadian fruit exhibit at Glasgow has done more to place our country in a favourable light before the British public than any other part of the exhibition or the whole of it combined. It has dispelled many false notions regarding its climate and capabilities, and has given birth to truer ideas. It has become a more attractive place to those seeking to make homes for themselves. To the capitalist it has become a more desirable place to invest his money in. To the mere sojourner, who hopes that after spending a few years abroad, mining or manufaeturing, or to otherwise employ his talents and means and return to his own land to enjoy his ease; it has been deprived of all its terrors, and has become a place where a man may even end his days with pleasure and credit and honour.

ROBERT HAMILTON,

*Superintendent of Canadian Fruit Exhibit at the  
Glasgow International Exhibition.*



COMMISSIONER'S REPORT

ROYAL EXCHANGE COLONIAL EXHIBITION

LONDON, ENGLAND, 1902







## ROYAL EXCHANGE COLONIAL EXHIBITION, 1902

I have the honour to report regarding the representation of Canada at the Colonial Exhibition held at the Royal Exchange, London, between March 10, and May 3, 1902.

The project had its inception in the action of colonial agents general and others, who were strongly of the opinion that a display of some of the principal exhibits which had been at the Glasgow Exhibition at such an important centre as the Royal Exchange would tend to further increase the growing interest manifested in the colonies and their products, and would afford a practical illustration, as far as space would permit, of the capabilities of the colonies in the matter of producing food supplies, and of their richness in mineral, forest and river wealth. The Royal Exchange occupies perhaps the most prominent site in the 'City' of London. It is a building of considerable historical interest and of fine architectural attractions. It is in close proximity to the Bank of England, to the Mansion House (the official residence of the Lord Mayor) and only a few hundred yards distant from the Guildhall, the historic headquarters of the 'City's' municipal life. Such well known streets as Cheapside, Cannon Street, Lombard Street, Cornhill, King William Street, and other financial and business centres are close by, while prominent among the banking institutions of the vicinity are the Bank of Montreal and the Canadian Bank of Commerce. After preliminary negotiations in regard to securing the use of the Royal Exchange for the proposed exhibition, what is known as the Gresham Committee made a favourable report, its action being encouraged by the reception of a strong petition from leading merchants, members of the exchange, and from a prevailing sentiment in favour of the exhibition. Agreeably with the report of the Gresham Committee, the chairman of the 'City' side, Sir Robert H. Rogers, Deputy, and John Horsley Palmer, Esquire, the Master of the Mercers' Company, and Chairman of the Mercers' side of the committee, undertook to meet the agents general with a view to granting them the space required. The action of the Grand Joint Gresham Committee was approved at a meeting of the common council of the City of London, the recommendation in favour of the report having been moved by Alderman Sir William P. Treloar, who took a strong personal interest in the scheme. At a meeting of the Joint Grand Committee held at the Mercers' Hall, it was learned that the following colonies were desirous of being represented at the exhibition; the Dominion of Canada, Western Australia, Rhodesia, British North Borneo, and, subsequently, the West Indies, India, New Zealand, New South Wales, Victoria, Queensland, South Australia, Tasmania and the Cape of Good Hope were likewise invited to participate in the exhibition, but, owing to uncontrollable circumstances, it was found impracticable for them to do so. Applications from private firms were made to be allowed to take part in the exhibition, but they were not entertained, as the use of the Royal Exchange was granted only to the governments represented at the Glasgow Exhibition.

The allotment of space was made in proportion to the extent of the various colonial sections at the Glasgow Exhibition. The Dominion of Canada occupied the entire side of the exchange, representing 5,252 square feet, being the largest section; Western Australia, 3,488 square feet; Rhodesia and British North Borneo representing 1,118 and 200 square feet respectively. The West Indies were subsequently given 150 square feet.

All preliminaries were satisfactorily completed, and no time was lost in preparing the Exchange for the reception of exhibits; and influential committees were appointed for carrying out the Exhibition scheme to a successful consummation. The Lord Mayor of London (the Right Honourable Sir J. C. Dimsdale, M.P.) was chosen President of the Exhibition; Vice-Presidents, the Duke of Argyll, an ex-Governor General of Canada; the Duke of Abercorn, the Marquis of Lansdowne, an ex-Governor General of Canada;



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the Right Honourable Lord Strathcona and Mount Royal, High Commissioner for Canada; the Earl of Aberdeen, an ex-Governor General of Canada; Chairman, the master of the Mercers' Company, Mr. John Horsley Palmer, vice-chairman Sir Robert Rogers, chairman of the Gresham Committee. The membership of the General Committee included Lord Strathcona, the Governor of the Bank of England, Honourable Alban Gibbs, M. P., Ald. Sir Wm. P. Treloar, Honourable H. B. Lefray, agent general for Western Australia, Honourable H. W. Venn, commissioner for Western Australia; Mr. John Howard, agent general for Nova Scotia; Mr. C. A. Duff-Miller, agent general for New Brunswick; Hon. J. H. Turner, agent general for British Columbia; Sir George Hayter Chubb, Bart., Honourable Sir John Cockburn; Mr. E. T. Doxat, president of the Australian Chamber of Commerce in London; Sir Robert G. W. Herbert, chairman of the executive committee of the British Empire League; and, besides others, the Canadian commissioner, Mr. E. Jerome Dyer proved a valuable honorary secretary and Walter Bates, of the Guildhall Staff an indefatigable and obliging secretary. Your commissioner had also the honour of serving on the executive committee, composed of nine members of which Lord Strathcona was chairman. And here I may step for a moment from the path of narrative, to refer to the increasing interest which Lord Strathcona manifested in the exhibition from the day the project was first mooted to him to the day of its closing. His enthusiasm for Canada is proverbial at all times and under all circumstances, and it was certainly displayed in connection with the Colonial exhibition at the Royal Exchange.

For the opening of the exhibition a large number of invitations were issued. The unique event was made the occasion of a civic function, which was characterized by dignified formalities. The Lord Mayor, the Lady Mayoress, the sheriffs and leading members of the committees occupied prominent positions on a raised dais, on which were placed palms and flowers, and a number of chairs for the use of the Civic party and distinguished guests. Lord Strathcona, in inviting the Lord Mayor to declare the exhibition open, gave a brief description of some of the principal exhibits, and dwelt upon the importance of the exhibition as an object lesson in Colonial productiveness, and explaining the circumstances under which the exhibits had been brought from Glasgow to London. His Lordship anticipated far-reaching results from the colonial display in the Royal Exchange, a centre of London's commerce and wealth. He also referred to the unique character of the occasion the first time the historic Royal Exchange had been granted for such a purpose, and, consequently, the significant concession of the Joint Grand Gresham Committee was all the more highly appreciated. The Lord Mayor, in his remarks, preliminary to declaring the exhibition open, said he wondered what Sir Thomas Gresham, of many centuries ago, the founder of the Royal Exchange, would think if permitted to be present and to look upon the interesting and valuable colonial display. The City of London gladly welcomed the opportunity of having such a display in its midst, as it was only right and proper that the foremost centre in the commerce of the world, should afford the occasion for a display of the products and energies of Greater Britain beyond the seas. Telegrams regretting their absence were read from the Duke of Argyll and the Earl of Aberdeen. After the formal opening proceedings, the guests inspected the various exhibits, Lord Strathcona, in person conducting a large party over the Canadian section. A luncheon was subsequently given at the Mercers' Hall, a magnificent old building, rich in its internal appointments and fittings. The Lord Mayor presided and Lord Strathcona made one of the most important speeches of the afternoon.

The best possible advantage was taken of the space devoted to the Canadian section of the exhibition, and the display was made with a view to make each class of exhibits as attractive as the surroundings would permit. The official catalogue of the exhibition consisted of 130 pages, of which over 40 were devoted to Canada. In view of the fact that many thousands of this catalogue were likely to be sold (the price being sixpence) the Canadian portion of it was so arranged as to include not merely a list of the exhibits, but chapters on Canadian geography, history (from the discovery and exploration of Canada down to confederation—1867) climate, industries, agriculture, fisheries, timber industry, mining and manufactures. In addition to the official catalogue sold by the



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exhibition authorities, thousands of 'up-to-date' Canadian pamphlets were distributed gratuitously and were eagerly sought after. From 20,000 to 25,000 persons visited the exhibition daily during the hours it was open, so an estimate may be conjectured regarding the number of pamphlets distributed. Besides, the Canadian Pacific Railway Company distributed thousands of pamphlets daily. The company made a fine display of views of Canadian scenery, &c., both in oil and photographs.

As stated in the Canadian portion of the official catalogue, 'after giving the matter due consideration, the Canadian Commissioner decided that instead of cataloguing the exhibits (which in itself would fill a volume), it would be much better to give such general information about the Dominion as would be useful both to the student and the general public.' The exhibit was so arranged that there was no difficulty in classifying the various sections, for on entering by the western door the minerals were all placed on stands in the following order:—

1. Iron and nickel ores ; 2. Corundum and corundum wheels ; 3. Gold copper ores, milling gold ores ; 4. Nickel and nickel products ; 5. Various gold ores from different provinces ; 6. Section of Klondike gravel ; 7. Copper ores, silver copper ores, silver lead ores, native silver ores ; 8. Petroleum, graphite, coal ; 9. Silver-lead ores ; 10. Iron and steel exhibits ; 11. Mica, asbestos, manganese, antimony, molybdenite, cinnabar, mineral paints ; 12. Copper ores ; 13. Bricks and clays ; 14. Infusorial earth, talc, lime, gypsum, fire clay, apatite, soap stone, salts and brines ; 15. Pacific Coast coal ; 16. British Columbia, Nova Scotia, North-west and New Brunswick coals, peat, maltha, tar sands ; 17. Ornamental and building stones, granites and marbles.

Agriculture was represented by a display of bottled grain in pyramid form consisting principally of wheat, barley, oats, rye, clover, corn, (maize) buckwheat, peas and beans ; food products comprised a considerable portion of the exhibit. Among the contents of these cases, attractively displayed were condensed milk, cream and cocoa ; cereals in packages, such as wheat, oatmeal, &c., 'Ovo', a preparation of desiccated eggs ; tinned fruit and vegetables, including apples, pears, peaches, apricots, strawberries, plums, peas, beans, corn and tomatoes ; 'Radnor' mineral water ; various brands of canned salmon, from British Columbia, now extensively used in Great Britain ; Canadian cured bacon ; canned lobsters and other food products were also displayed. Apples in their natural state were shown in great variety, as well as a large and varied assortment in bottles preserved in antiseptics, comprising pears, peaches, plums, grapes, cherries, &c., as well as vegetables such as peas, beans, tomatoes, all of these attracted considerable attention.

The forestry section was in a most conspicuous location and advantage was taken of this fact to make the display as striking as possible, specimens being shown in the log, square-finished and polished. There were also shown the photographs of trees indigenous to Canada, each photograph being framed in the wood of the tree represented. Photographs of lumbering operations were also in this section.

The wisdom which dictated a favourable view by your department to the proposal to have Canada represented at the exhibition was fully demonstrated from day to day ; for such expressions as 'Canada must be a great country', 'Canada's resources must be enormous', 'what an extensive country it is', and the like, were heard on every hand ; while many prominent Canadian visitors were heard to say,—'this is one of the best advertisements the Dominion has ever had'. The daily attendance included prominent business men, capitalists, shipping merchants, bankers, and many persons anxious to get all the information possible about Canada and its resources. Many inquiries were made of a specific nature, more especially with reference to corundum, granite, roofing slate, graphite, mercury, molybdenite, marble, infusorial earth, fluorite, food products, fruit, timber, and its manufactures and even Caraquet oysters. In each case all possible information was given, and where practicable samples were made use of. In many instances inquirers were put in direct communication with Canadian manufacturers, exporters or their local representatives.

I desire to give expression to my appreciation of the services of my staff, consisting of Mr. James Brodie, secretary ; Mr. A. K. Stuart, mineral curator, and Mr. John Edgar, foreman, also of the uniform friendliness of the members of the committees on



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which I had the honour of serving, and of the continuous courtesy of all the officials, who spared no effort in rendering such assistance as was desirable in completing the details for making the Canadian exhibit attractive, and to the extent possible in the limited space, worthy the Dominion.

After the close of the exhibition, a very successful dinner was tendered by the commissioners of the exhibiting colonies to the Right Honourable Lord Mayor, Sir J. C. Dimsdale, the Sheriffs and Aldermen of the 'City', also the members of the Joint Grand Gresham Committee.

I append hereto a few of the remarks taken from the official report of the chairman and the deputy chairman of the exhibition :—

'The work of organizing this exhibition has been justified by results.'

'It was impossible for us to ascertain the actual number of persons who visited the exhibition, but the marked success of the exhibition was apparent throughout, from the fact that an aggregate of over a million visitors attended, most gratifying testimony to this effect has been received by us.'

'The executive committee spared neither time nor pains to contribute to this success, on which, in our opinion, one and all are to be congratulated.'

'As an agency for calling attention to the commercial and particularly to the mining, resources of the Empire, it has proved a distinct success.'

'It seemed designed to convey a definite idea of the resources of the British Empire at a glance.'

'The exhibition is the first of the kind ever held in the 'City' of London, and we are of opinion that as regards unqualified success and public popularity it would be impossible to surpass it.'

'The exhibition, we have no doubt, will be the means of cementing still closer the feeling of amity and mutual respect of the Colonies with the Mother Country.'

W. D. SCOTT.

*Commissioner.*

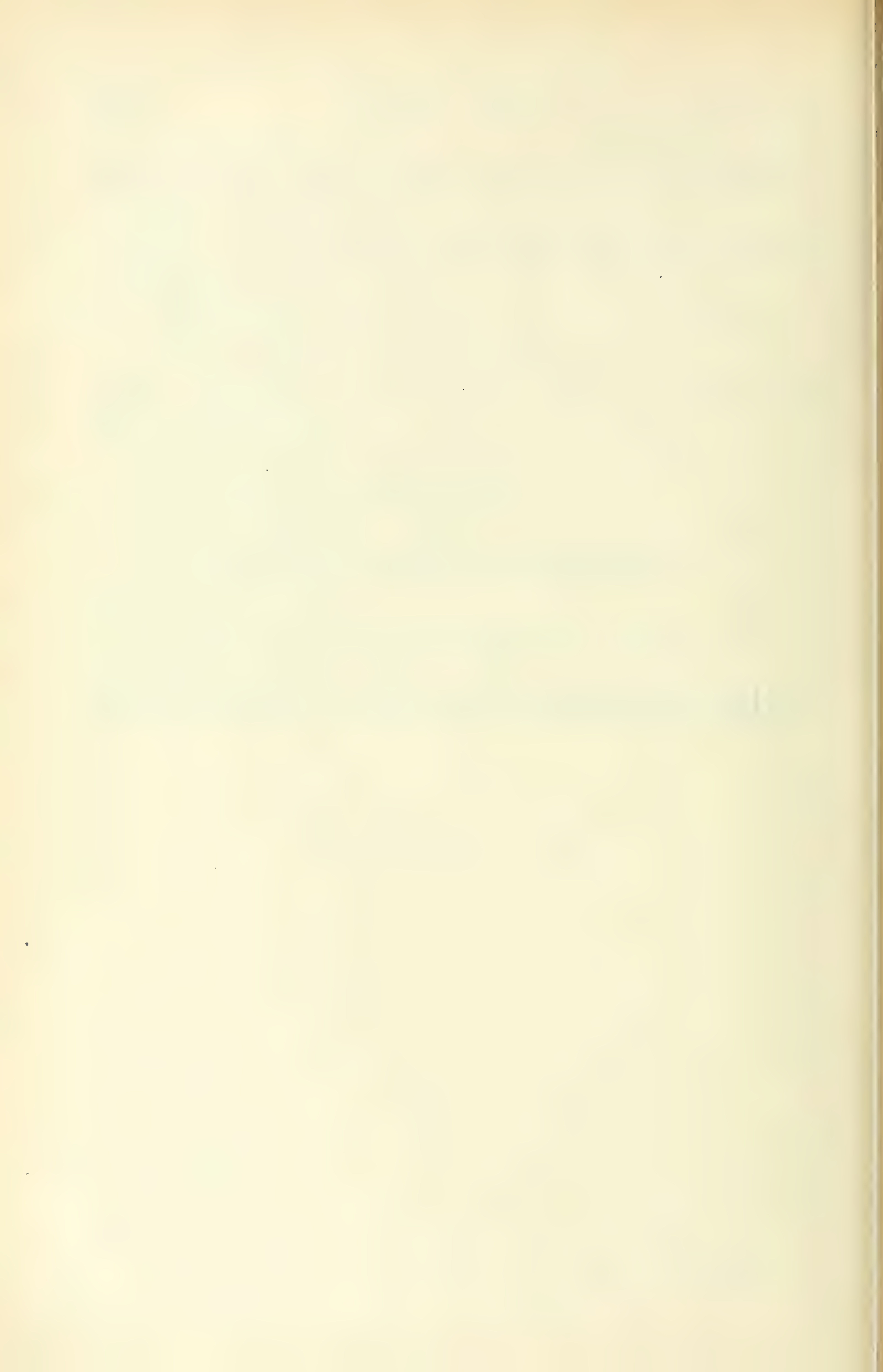


COMMISSIONER'S REPORT

CORK INTERNATIONAL EXHIBITION

CORK, IRELAND, 1902.







## CORK INTERNATIONAL EXHIBITION, 1902

I have the honour to report with reference to the Cork International Exhibition (and Canada's exhibit thereof) held at Cork, Ireland, May 1, to November 1, 1902.

The credit of the inception of the exhibition is due to the Rt. Hon. Edward Fitzgerald, Lord Mayor of Cork, who mentioned the project at a meeting of the Municipal Council in February, 1901. A public meeting was subsequently held when the scheme was taken up with great enthusiasm, which was not confined to Cork but received the hearty support of all the leading centres in Ireland, notably Dublin and Belfast, which not only entered into the scheme with ardour but subscribed liberally to its support. It was originally intended to hold the exhibition in rear of the municipal buildings on the site of the one held in 1883, but the project grew so rapidly and was so successful that the space available was found totally inadequate and a larger area had to be procured; this was found on the western road, between the Mardyke and the historic River Lee and a more picturesque or ideal spot could not have been found anywhere, nature having endowed the locality with untold advantages and beauties.

His Excellency Earl Cadogan, K. G., Lord Lieutenant of Ireland, extended his patronage to the project. The Rt. Hon. the Earl of Bandon, K. P., was president and the Rt. Hon. Edward Fitzgerald, Lord Mayor of Cork, acted as chairman of executive.

The Rt. Hon. the Earl of Bandon formally opened the exhibition on May 1, being assisted by the lord mayors of Cork, Dublin and Belfast; it was however some considerable time after that before the various installations and even the buildings themselves were completed, and the paths and grounds in proper condition.

The principal buildings were the industrial hall with a floor space of 170,000 square feet; the machinery hall with 20,000 square feet, concert hall, Canadian pavilion, art gallery, president's pavilion, executive officers, besides numerous restaurants, tea rooms and other small buildings; a large portion of the grounds was devoted to practical agriculture, &c.

*The Industrial Hall* contained a large number of Irish industrial exhibits, also many of a similar class from England and Scotland, besides those from France, Austria, Russia and Japan; but by far the most instructive and practical exhibit in this building was that of the Department of Agriculture and Technical Instruction for Ireland, which comprised specimens of all the mineral and raw materials produced in Ireland, as well as working exhibits of the manufacture of carpet, hosiery, straw hats, and many other industries, which this department is endeavouring to establish in the country, the educational and technical instruction branches were also in this section.

*The Machinery Hall* contained the boiler-house, from which the power for driving the machinery and for generating the electric light was obtained; here were also displayed many exhibits in motion consisting principally of engines, iron and wood working machinery, dynamos, motors and a model working bakery and confectionery.

*The Art Gallery* contained a very nice though small collection of works loaned from various corporations and individuals, two of them being loaned by His Majesty the King from Buckingham Palace, a special feature was the Irish Gallery devoted to the works of Irish artists past and present.

Apart from the exhibit in the Industrial Hall, the Department of Agriculture and Technical Instruction for Ireland, had a number of small buildings, such as a model dairy, byre, fruit canning and preserving factory, creamery, glass blowing furnace, and model labourer's cottage and plot, besides fruit and vegetable school gardens, poultry runs, incubators, working apiary, and fish ponds, aquarium and fish hatching apparatus.

*The Canadian Pavilion* had a floor space of 5,000 square feet, and was one of the most striking and beautiful buildings on the grounds. It was certainly on the choicest



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site, being about the centre of the exhibition and facing the River Lee. This building was rectangular in form, flanked by two towers, at each end, which gave it a very imposing and dignified effect, their proportions and symmetry being particularly striking. The main entrance was very effectively dealt with by a massive arch, in fibrous plaster over which appeared, in plain block letters, the word *Canada*.

The first object to claim attention on entering was an immense case containing a great variety of the leading brands of Canadian food products, consisting of meat, fruit and vegetables, such as chicken, turkey, goose, duck, corned beef, pigs' feet, ox tongues, potted meats, sausage, roast meats, &c., apples, raspberries, strawberries, cherries, Damson plums, green gages, egg plums, currants, Bartlett pears, Crawford peaches, &c., wax string beans, tomatoes, sweet corn, cauliflower, beets, baked beans, tomato catsup, &c., these cases also contained pyramids of Radnor mineral water and 'Canadian Club' whiskey, as well as Imperial and Paragon cheese, honey, Beaver oats and Swiss food. Immediately behind this case was a smaller one containing flour, oatmeal, peas, barley, &c.

The whole of the eastern side of the building was devoted to agriculture, which was very striking on account of the effective display, both of grain in straw, and in bottles, the former elaborately set up in arches, pyramids, sheaves and bunches being festooned and wreathed in many varied and artistic forms; on the wall, framed in grain in straw, were a series of paintings showing such scenes as seed-time, harvesting and threshing operations in the Canadian North-west. Between these paintings on small stands erected for the purpose, as well as around each pillar, were hundreds of bottles of all shapes and sizes, containing specimens of wheat, oats, barley, rye, Indian corn, peas, flax, millet, and in fact all the leading varieties of grain, grasses, and fodder plants which grow in Canada. The collection contained thousands of samples comprising over five hundred different varieties, and the exhibit was admitted to be the best of its kind ever seen in Ireland.

In this section an attendant was placed whose duty it was to give all possible information in connection therewith and attend to the distribution of literature, which was much sought for and many thousands of pamphlets were distributed by him in a judicious manner, the great bulk being on agriculture.

In the centre of the building was the display of fruit, natural and in antiseptics; the former consisted altogether of apples picked in 1901, there were about 35 varieties on some 100 plates distributed around a large table 27 ft. x 6 ft. along the centre of which were the numerous bottles containing grapes, plums, peaches, pears, currants, strawberries, raspberries, gooseberries, blueberries, cherries, &c.; also peas, string beans, Windsor beans, tomatoes, &c. Adjoining this was the cold storage chamber which was kept at a temperature of about 34°; and in which were kept white and coloured cheese, butter, eggs, apples in cases, dressed poultry, maple products, honey, &c.

The western side was devoted to timber and minerals. The timber exhibit comprised all the leading varieties of woods, especially those most suitable for export, such as pine, (white, yellow and red) spruce, birch, oak, elm, and numerous other varieties which it is needless for us to mention here; this section was very much enhanced by the display of photographs showing the various trees indigenous to Canada, each photo being framed in the wood of the tree represented; here was also a set of photographs illustrating lumbering operations, and on the outer wall another set of paintings representing scenes in forest and mine.

In the minerals there were specimens of almost all Canada can produce placed in cases and on stands, including an exhibit of Klondike nuggets which attracted much attention.

Statistical information was prominently displayed at both ends of the building, showing the large increases in production and export of all the leading products of the country.

Many inquiries were made of a practical nature with reference to almost all our exhibits, more especially in connection with oats and barley both for seeding and feeding purposes, our 4 and 6 rowed barley being especially interesting to the farmers, this being their principal product which is used for brewing and distilling purposes but



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in Ireland only two rowed is grown. Hay is another article about which numerous inquiries were made, also fruit and food products; all of these inquiries were given careful attention and in each case inquirers were put in communication with the Canadian manufacturers, producers, exporters or their local agents. The wholesale and retail grocery trade were called upon with a view to inducing them to handle Canadian products, with very satisfactory results, and all the food products on exhibit were disposed of to them at the close of the exhibition.

During the course of the exhibition it was visited by numerous notables, including the Duke and Duchess of Devonshire, His Excellency Earl Cadogan, K. G., Lord Lieutenant of Ireland and Countess Cadogan, Right Hon. Richard Seddon, Premier of New Zealand, His Eminence Cardinal Moran of Sydney, Australia. The Admiral and officers commanding the Japanese fleet which took part in the Coronation Naval Review, the Earl and Countess of Aberdeen, and His Excellency the Earl of Dudley, Lord Lieutenant of Ireland and the Countess of Dudley, numerous Canadians also visited the exhibition, among others, Hon. Wm. Paterson, Minister of Customs, Hon. Senator McSweeney, Messrs. D. C. Fraser and H. J. Logan. All were unanimous in their expressions of admiration of the Canadian exhibit. Local opinion can better be expressed by quoting a few of the remarks made in the register:

August 2, 1902.

‘During my stay in Cork I was particularly struck with the Canadian section of the exhibition. The pavilion is very picturesque, the exhibits various, and convey to the mind of the visitor the great agricultural wealth of the Dominion. Courtesy and kindness to all is the motto of the attendants.

REV. J. M. CARROLL,  
*Waterford.*

July 9, 1902.

‘I have visited the Canadian pavilion, and was greatly pleased with the variety and beauty of the exhibits from the Dominion, and consider it to be one of the most interesting and remarkable portions of the exhibiton.

W. E. MEADE, D.D.,  
Lord Bishop of Cork, Cloyne & Ross (C. of I.)

July 17, 1902.

‘When I visited the Canadian pavilion as an Irish farmer I was thunder struck with the quality of grain. It is a great credit to the country and it is a lesson to us Irish farmers.

MICHAEL RONAYNE,  
Castlemartyr, Co. Cork, prominent farmer.

July 18, 1902.

‘I admire very much the splendid presentation of Canadian exhibits. They are set out with much taste. The affability of the promoters and attendants deserves praise.

J. F. X. O'BRIEN, M.P., *Cork.*  
Junior Member for Cork.

July 22, 1902.

‘The Canadian pavilion seems to me to be deserving of high commendation. I thank the secretary for his courtesy and his valuable information regarding Canada and its agricultural products which he gave us.

ROBERT BROWN.  
Bishop of Cloyne, R.C.



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July 24, 1902.

‘I have examined samples of barley on exhibition in this pavilion, and consider the quality of the grain submitted to be better by far than the average of our Irish grown barley. The Canadian samples are nearly, if not similar to our best quality of Chevalier. The manner in which the exhibits are displayed is highly creditable to those responsible for adding such an interesting feature to the Cork Exhibition.

ROBERT McINTOSH.

(Grain expert representing the Castlebedingham &amp; Drogheda Breweries, Limited.)

July 23, 1902.

‘I cannot sufficiently express my admiration for the admirable exhibit which illustrates in every possible way the growth of Canadian export and of all the resources of Canada in the present and future.

GEO. COLTHURST, *Bart.*

Proprietor of Blarney Castle.

July 28, 1902.

‘I have been much pleased with samples of barley &c., shown in Canadian section at Cork Exhibition.

NEIL A. GALWAY,

(Brewer Messrs. Allman, Dowden &amp; Co. Bandon, Leading Brewers.

August 23, 1902.

‘Whether in admirable and picturesque arrangement, interest and excellence of the products of Canada or in practical utility, this department seems to me to be second to nothing in the whole exhibition.

W. LANE, J.P.

(Ex-President Cork Chamber of Commerce and Shipping.)

September 4, 1902.

‘In my opinion the Canadian pavilion is one of the chief attractions at the Cork Exhibition.

CAPT. A. DONELAN.

M.P. for East Cork.

W. D. SCOTT.

*Commissioner.*



COMMISSIONER'S REPORT

WOLVERHAMPTON ART AND INDUSTRIAL EXHIBITION

ENGLAND, 1902.







## WOLVERHAMPTON ART AND INDUSTRIAL EXHIBITION, ENG., 1902

## LOCATION.

The Wolverhampton Art and Industrial Exhibition was held from May 1, to November 8, 1902, and was centrally and conveniently located in a portion of the West Park, belonging to the corporation, and on land loaned by Lord Barnard. It was supported by the corporation of the town and also by private guarantors to the extent of £30,000.

## OPENING.

The exhibition was formally opened by Their Royal Highnesses The Duke and Duchess of Connaught on May 1, Lord Strathcona and Mount Royal, the High Commissioner for Canada, was also present and received their Royal Highnesses at the Canadian pavilion and showed them the Canadian exhibits.

## OFFICERS.

*President*, The Earl of Dartmouth, Lord-Lieutenant of the county of Stafford.

*Chairman of the Executive Committee*, Thomas Graham, J. P.

*Chairman of the Finance Committee*, C. T. Mander, M. A., J. P.

*Director and General Manager*, H. A. Hedley.

*Acting Manager*, J. H. Cundall.

*Secretary*, Stephen Watkins, Assoc. M. Inst., C. E.

## SCOPE.

The prospectus stated that 'the scope of the exhibition will include a full illustration of the Engineering Industries and Industrial and Scientific Products of the British Empire, and foreign countries, &c.'

## BUILDINGS AND EXHIBITS.

The architects for the buildings were Messrs. Walker and Ramsay of Glasgow. The chief buildings and their contents were as follows:—

## THE INDUSTRIAL HALL, 377 FT. X 72 FT.

Containing silverwork, musical instruments, upholstery, iron, brass and glass work, hardware, coaches, cycles and automobiles. Dress goods (looms in operation), house furnishings, art productions, sewing machines, typewriters, &c. Also goods on sale from Japan, India and Denmark.

## THE MACHINERY HALL, 350 FT. X 150 FT.

Containing boilers, electric generating machinery, steam and gas engines, printing, engraving and typesetting machinery in operation, iron and wood working tools and machines, &c.

## CONCERT HALL, 164 FT. X 74 FT.

Accommodation for 2,000 people. Used for entertainments.



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## CANADIAN PAVILION, 100 FT. X 80 FT.

This building, which contained 8,500 feet of floor space, was the only specimen of strictly classical architecture included in the general scheme. It had a colonade front surmounted by a finely proportioned dome. The architects were Messrs. Walker and Ramsay of Glasgow, who also designed the Canadian Building of Glasgow (1901) Exhibition, and the Canadian Coronation Arch in Whitehall, London.

The Canadian pavilion occupied a prominent position between the industrial hall and machinery hall, and was so located that the great majority of visitors could not overlook or pass it by, and throughout the entire term of the exhibition was the centre of interest.

*Contents.*—An agricultural trophy occupied the dome at main entrance to the building. The trophy was 40 ft. in circumference, and was decorated with grains and grasses in the straw festooned and wreathed about the pillars, arches and dome. Within and beneath the trophy was shown grain in bottles, arranged in tiers on a circular stand as follows:—Oats, 107 varieties; barley (two-rowed), 30; barley (six-rowed), 38; fall wheat, 22; spring wheat, 117; peas, 61; Indian corn, 37; millet, 9; also soja and horse beans, flax and hops.

The Wm. Davies Co., Toronto, displayed canned meat products and bacon; cheese, butter and eggs were shown by the Anglo-Canadian Produce Co., Liverpool and by Messrs. A. Clement & Sons, Glasgow and Manchester; "Canadian Club" whiskey by Hiram Walker & Sons, Ltd., Walkerville, Ontario; canned goods, (milk, fruit, meat and vegetables) as follows:—

- Truro Condensed Milk & Canning Co., Truro, N.S., milk, cream, &c.
- Leslie Hart & Co., Halifax N.S., lobster.
- Aylmer Canning Co., Aylmer, Ont., fruits and vegetables.
- The Simcoe Canning Co., Simcoe, Ont., fruits, vegetables and meats.
- The Laing Packing Co., Montreal, Que., meats.
- Wm. Clark, Montreal, Que., meats.
- The Kent Canning Co., Chatham, Ont., fruits and vegetables.
- Miller & Co., Trenton, Ont., fruits and vegetables.
- The A. F. Maclaren Imperial Cheese Co., Ltd., Toronto, Ont., cheese (potted).
- The T. D. Miller Cheese Co., Ingersoll, Ont.
- Trappist Monastery, Oka, Que., cheese.
- Wm. Johnston, Glanworth, Ont., cheese.
- Canada Maple Exchange, Dunham, Que., maple sugar and syrup.
- Ontario Bee-Keepers Association, honey (comb and extracted).
- Radnor Mineral Water Co., Radnor, Que., mineral waters.
- The Ovo Co. Ltd., Stratford, Ont., and Winnipeg, Man., desiccated eggs (ovo).
- P. MacIntosh & Son, Toronto, rolled oats (Beaver brand) and Swiss food.
- The Ogilvie Milling Co., Winnipeg, Man., flour and grain products.
- The Huron & Manitoba Milling Co., Goderich, flour and grain products.
- The Lake of the Woods Milling Co., Keewatin, " "
- The Tilson Co., Tilsonburg, Ont., " "
- Walter Thompson, London, Ont., " "
- John Mackay, Bowmanville, Ont., " "
- Archibald Campbell, Toronto Junction, Ont. " "
- A. Clement & Sons, Ltd., Manchester, tinned salmon (Parsley brand).
- W. H. Dwyer, Ottawa, hay (pressed).
- The Canada Furniture Mnfrs., Ltd., Toronto and London, Eng., furniture.
- Gilmour & Co., Trenton, Ont., veneered doors.
- Mica Boiler Covering Co., Ltd., Montreal and London, Eng., mica products.
- The Metallic Roofing Co., Ltd., Toronto, embossed metal for ceilings and walls.
- Aptus Veneer Co., Ltd., London, Eng., wood veneers.
- Canadian Pacific Railway Co., views of Canada.
- Quebec and Lake St. John Railway Co., views of Canada.



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Canadian stuffed birds and animals and mounted heads, were kindly loaned by Rt. Hon. A. Staveley Hill, K.C., Oxley Manor, Wolverhampton, Eng., and white owl by W. H. Thompson, Bushbury, Wolverhampton, Eng.

Three stuffed specimens of caribou and deer, loaned by the Quebec Government.

## MINERALS.

Eight large cases were filled with specimens of native gold, gold and silver quartz, and specimens of all the minerals common to Canada.

## FORESTRY.

This exhibit included samples of native woods cut in boards, also logs of different trees with the bark on, photographs of all the prominent trees were shown, and the frames were made of the wood of the tree photographed.

## FRUIT.

Four hexagonal stands were filled with tiers of bottles containing the various varieties of fruits grown in Canada, preserved in antiseptic fluid.

Throughout the entire season apples of 1901 growth were exhibited, and the surplus sold late in October. New fruits, chiefly apples, began to arrive early in September, and besides those shown, a number of cases were sold in order to make Canadian apples better known and more generally sought for.

## CANNED GOODS, ETC.

A considerable quantity of canned fruits, vegetables and meats, also maple sugar and confections, and clover honey were sold in small quantities to educate people to seek and use them in future. Mr. J. H. Moore was in charge of this work and a considerable business was done.

## SAMPLES OF CHEESE.

Thirty thousand small samples of September, 1901, Canadian Cheddar cheese were distributed, and a demand was in this way created for a first class quality cheese.

## COLD STORAGE DEPT.

A feature of great practical interest was the cold storage plant and room. The plant was installed by the Linde British Refrigeration Co., of Montreal, and attracted a great deal of attention. The room was kept well filled with apples, cheese, eggs, butter, &c., throughout the season.

## STAFF.

Commissioner :—W. D. Scott, Ottawa, Ont.

Secretary :—Henry Yeigh, Brantford, Ont.

Horticulturist :—A. McD. Allan, Goderich, Eng.

Foreman :—John Edgar, Ottawa, Ont.

Stenographer :—A. E. Homer, Wolverhampton, Eng.

In charge of stand for sale of canned goods :—J. H. Moore, London, Eng. (formerly of Hamilton, Ont.)



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Large quantities of pamphlets and copy books were distributed to visitors, and much more was sent through the mail to school teachers, intending settlers, and others interested who applied for literature. Copies of The Trade Index furnished by the Manufacturers' Association of Canada were carefully distributed to business men likely to use them to advantage. Several hundred people desiring to settle in Canada were advised at the pavilion in person, or by correspondence, and as result a number have already gone to Canada, and a much larger number say they will go next spring, and the thought of going has been started in the minds of many more.

Men interested in manufacturing were advised where to purchase material needed, and others wishing to handle natural products, or manufactured goods from Canada were assisted in every possible way.

Canned goods were advertised thoroughly, and many people led to purchase and use them, with the result that a large demand has been created, and local dealers have decided to carry Canadian canned goods in stock in future. Cheese also was made well known.

Articles were prepared, on Canada and its products, for the English press and published in prominent papers such as the *Mark Lane Express*, *Birmingham Post*, *Express & Star*, *Wolverhampton*, and others.

W. D. SCOTT,  
*Commissioner.*



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No. 54.

## IMPORTATION OF DOGS INTO GREAT BRITAIN FROM ABROAD.

*Circular.*

DOWNING STREET, December 28, 1901.

SIR,—With reference to my circular dispatch of August 25, 1900, inclosing copies of a memorandum issued by the Board of Agriculture relating to the importation into Great Britain of dogs brought from abroad, I have the honour to acquaint you that the Board have informed me that, in view of the fact that rabies, whilst very prevalent abroad, is believed to have been finally eradicated in the United Kingdom, they have considered it a favourable opportunity to issue regulations which, although not differing in character from those at present in force in so far as they require all dogs landed from abroad to undergo a period of quarantine, yet lay down more specific and stringent rules on the subject, and I accordingly transmit to you for such publication in the colony under your Government as you may think desirable, copies of the Importation of Dogs Order of 1901 and of a memorandum thereon.

2. The Board have observed that the new Order will not have full effect prior to March 15 next, and that in the meantime the landing of dogs other than performing dogs intended to be kept in this country will be authorized on conditions substantially the same as those which have hitherto obtained.

I have the honour to be, sir,

Your most obedient, humble servant,

J. CHAMBERLAIN.

The Officer administering  
The Government of Canada.

## DISEASES OF ANIMALS ACTS, 1894 AND 1896.

## IMPORTATION OF DOGS INTO GREAT BRITAIN.

On and after the 1st day of January, 1902, the landing in Great Britain of dogs from abroad will only be permitted subject to the provisions of the Importation of Dogs Order of 1901, which in effect requires that after March 15 next, every imported dog shall be detained and isolated at the expense of its owner upon premises in the occupation or under the control of a Veterinary Surgeon for a period of six calendar months from the date of landing.

Until March 15 next, dogs will be allowed to land upon conditions substantially the same as at present.

The disease of rabies having ceased to exist both in Great Britain and in Ireland, it has become of the utmost importance that the most effective steps should be taken to prevent its re-introduction from abroad, and the Board have felt it incumbent upon them, in the interest of dog owners in this country, to amend their regulations in the manner above described, and to warn persons who may propose to travel, that after the



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aboved mentioned date the isolation and detention of dogs on the private premises of their owners can no longer be sanctioned.

By the dogs (landing from Ireland) Revocation Order of 1901, the restrictions on the movement of dogs between Ireland and Great Britain have been removed.

T. H. ELLIOTT, *Secretary*.

Board of Agriculture,  
4, Whitehall Place,  
London, S. W.,  
December, 1901.

*Circular.*

DOWNING STREET, March 11, 1902.

SIR,—With reference to my Circular despatch of December 28 last relative to the importation into Great Britain of dogs brought from abroad, I have the honour to transmit to you, for the information of your Government, a copy of a letter from the Board of Agriculture inclosing a copy of a further notice which has been issued to the Press in this country on the subject, and calling attention to the desirability of giving wide publicity in the Colonies to their Order of December 12, 1901, and Memorandum A 214a, further copies of which are herewith transmitted.

I have the honour to be, sir,

Your most obedient, humble servant,

J. CHAMBERLAIN.

The officer administering  
The Government of Canada.

*Inclosure 1.*

(No. A. 6663, 1902.)

BOARD OF AGRICULTURE,  
4, WHITEHALL PLACE, LONDON, S.W., March 1, 1902.

SIR,—I am directed by the Board of Agriculture to advert to Mr. Graham's letter of December 31 last acquainting the Board, in reply to their communication of December 12, that copies of the Importation of Dogs Order of 1901 and of the Memorandum thereon would be forwarded, as on previous occasions, to the various representatives of the Colonies in this Country and abroad, and I am to say that notwithstanding the wide publicity which has already been given to the requirements of the Order, the Board have issued to the Press a further notice, copies of which are inclosed, as a reminder to the public that the 15th inst. is the date upon which imported dogs will become subject to detention under quarantine for a period of six months at a veterinary establishment approved for the purpose. By this means the Board hope to minimise the inconvenience which may be caused by the movement of dogs out of Great Britain by persons imperfectly acquainted with the regulations, but they think that a greater service might be rendered to those concerned if the order and its requirements could be published more widely abroad, and this would appear to be specially desirable in the case of the colonies.

I am, therefore, desired to ask you to be so good as to move the Secretary of State to cause copies of the press notice, and of the order and of the memorandum A<sup>2</sup>1<sup>4</sup> to be again sent to the Governors of colonies, the High Commissioner for Canada, and the



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agents general and other colonial representatives to whom copies of the order and the memorandum have already been forwarded, with a request that steps may be taken to disseminate the information in their respective countries as widely as possible.

The Board feel it their duty to omit no step which may have the result of mitigating the effect of an order, the enforcement of which, unfortunately, must at first be expected to interfere very considerably with the convenience of a section of the travelling public, and it is upon these grounds that they seek the co-operation and assistance of your Department and of the various authorities representing the colonies.

I am, sir,

Your obedient servant,

T. H. ELLIOTT,  
*Secretary.*

The Under Secretary of State for the Colonies,  
Downing Street, S.W.

*Inclosure 2.*

IMPORTATION OF DOGS.

The Board of Agriculture again desire to draw the special attention of the public to the fact that after March 15, next the landing in Great Britain of dogs brought from any country except Ireland, the Channel Islands and the Isle of Man, will be subject to article 2 of the Importation of Dogs Order of 1901, which expressly provides that every imported dog must be detained and isolated at the expense of its owner upon premises in the occupation or under the control of a veterinary surgeon, which shall have been previously approved in writing by the Board for that purpose, for a period of six calendar months, during which period the dog may not be moved from the place of detention except as provided in that article. This article does not apply in the case of an imported dog, which is intended to be exported from Great Britain within forty-eight hours, or of a performing dog, with regard to the detention and isolation of which special conditions will be imposed by the licence authorizing its landing.

The memorandum A<sup>160</sup> as to the importation of dogs into Great Britain from abroad, dated August 8, 1900, will cease to have effect when article 2 of this order comes into operation.

T. H. ELLIOTT,  
*Secretary.*

4, Whitehall Place, London, S.W.,  
February 26, 1902.



(6396)

## ORDER OF THE BOARD OF AGRICULTURE.

(Dated December 12, 1901.)

## IMPORTATION OF DOGS ORDER OF 1901.

The Board of Agriculture, by virtue and in exercise of the powers in them vested under the Diseases of Animals Acts, 1894 and 1896, and of every other power enabling them in this behalf, do order, and it is hereby ordered, as follows:—

*Restriction on Importation of Dogs.*

1. An imported dog, that is to say, a dog brought to Great Britain from any other country, except Ireland, the Channel Islands and the Isle of Man, shall not be landed in Great Britain unless its landing is authorized by a license of the board previously obtained, and when landed it shall be subject to the provisions of this order, and to the conditions inserted in any license authorizing its landing.

*Detention and Isolation of Imported Dogs.*

2.—(1.) An imported dog shall, for a period of six calendar months after its landing, be detained and isolated at the expense of its owner upon premises in the occupation, or under the control, of a veterinary surgeon, which shall have been previously approved in writing by the board for that purpose, and such premises are in this order referred to as the 'place of detention.'

(2.) During the said period the dog shall not be moved from the place of detention except to another place of detention or to a vessel for exportation, and in either case only with a license of the board authorizing such movement.

(3.) This article shall not apply to (a) an imported dog which is shown to the satisfaction of the board to be a bonâ fide performing dog; or (b) to an imported dog which is intended to be exported from Great Britain within forty-eight hours after its landing; but every such dog shall be subject to the other articles of this order.

(4.) This article shall come into operation on the fifteenth day of March, one thousand nine hundred and two.

*Conditions of License.*

3. The board may insert in any license granted by them under this order authorizing the landing of an imported dog such conditions as they think necessary or desirable for the following purposes:—

(i.) for prescribing and regulating the detention and isolation of the dog so far as the same is not prescribed and regulated by this order;

(ii.) for prescribing the person by whom and the premises on which the dog shall be detained and isolated;

(iii.) for regulating the movement of the dog to the place of detention, or vessel for exportation, and for prohibiting or regulating its movement during a period of six calendar months after its landing, or until its exportation, as the case may be;

(iv.) for prescribing the confinement of the dog in a suitable hamper, crate, box, or other receptacle during the movement of the dog by railway, or along a highway or thoroughfare;



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- (v.) for prescribing the mode of isolation of the dog ;
- (vi.) for prescribing the muzzling of the dog ;
- (vii.) for prescribing the notice to be given of the death or loss of the dog, or of any matter arising in connection with the movement, detention, or isolation of the dog and the persons by whom and to whom the notice is to be given ; and
- (viii.) for prescribing the production of a license for inspection by an officer of the board, or constable, or officer of customs.

*Notice of Detention in case of Illegal Landing.*

4.—(1.) Where an imported dog has been landed in contravention of this order or of any order hereby revoked, the board, or an inspector of the board, may give notice to the owner or person in charge of the dog requiring that, within a time specified in such notice, the dog shall be moved (*a*) to a vessel for exportation, or (*b*) to a place of detention for the purpose of detention and isolation in accordance with the provisions of such notice.

(2.) Such provisions may be inserted in the notice as the board may think necessary or desirable for any of the purposes mentioned in the preceding article.

(3.) A notice under this article may, subject to any instructions issued by the board, be given by an inspector of the local authority.

(4.) If the owner or person in charge of the dog, after receipt of such notice, fails to move the dog as required by the notice, he shall be deemed guilty of an offence against the Act of 1894.

*Withdrawal of License in cases of Default.*

5.—(1.) If the owner or person in charge of an imported dog is convicted of an offence under this order in relation to the dog, the board, or an inspector of the board, may give notice to such owner or person in charge, requiring him to move the dog to a vessel for exportation within a time specified in such notice.

(2.) If the owner or person in charge of the dog, after receipt of such notice, fails to move the dog as required by the notice, he shall be deemed guilty of an offence against the Act of 1894.

*Relanding prohibited of Imported Dogs moved to Vessels for Exportation.*

6. An imported dog which has been moved to a vessel for exportation in accordance with a license or notice under this order shall not be relanded in Great Britain without a license of the board authorizing such landing.

*Seizure of Dogs in case of Default.*

7.—(1.) If an imported dog is not detained and isolated as required by this order or by the conditions or provisions of any license or notice thereunder, an inspector of the board may seize the dog, and thereupon the board shall detain and isolate it at the place of detention specified in the license or notice, or any other place of detention selected by them, in accordance with the requirements of this order or the said conditions or provisions.

(2.) If the owner of the dog does not, within ten days after the expiration of the period of detention specified in this order or in the license or notice, claim the said dog from the board, and pay to them their expenses of detaining and isolating the dog, the board may destroy or otherwise dispose of the dog as they think expedient.

*Proceedings under Customs Acts for Unlawful Landing.*

8.—(1.) If any person lands or attempts to land a dog in contravention of this order, he shall be liable, under and according to the Customs Acts, to the penalties imposed on persons importing or attempting to import goods the importation whereof is



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prohibited by or under the Customs Acts, without prejudice to any proceedings against him under the Act of 1894 for an offence against that Act.

(2.) The dog in respect whereof the offence is committed shall be forfeited under and according to the Customs Acts in like manner as goods the importation whereof is prohibited by or under the Customs Acts.

*Detention of Dogs on Vessels in Port.*

9.—(1.) Every dog to which this article applies shall at all times while on board a vessel in any port in Great Britain be—

(a) secured to some part of the vessel by a collar and chain and muzzled with a wire cage muzzle so constructed as to render it impossible for such dog while wearing the same to bite any person or animal, but not so as to prevent such dog from breathing freely or lapping water; or

(b) confined in an inclosed part of the vessel from which the dog cannot escape.

(2.) If any dog to which this article applies shall die, or be lost from a vessel, in any port in Great Britain, the person in charge of the dog shall forthwith give notice of such death or loss to the board.

(3.) The provisions of this article shall apply to every imported dog which is not accompanied by a license issued by the board authorizing the landing of such dog in Great Britain.

*Extension of certain Sections of Diseases of Animals Act, 1894.*

10. Dogs shall be animals, and rabies shall be a disease, for the purposes of the following sections of the Act of 1894, namely:—

Section forty-three (powers of police);

Section forty-four (powers of inspectors);

Section fifty-six (unlawful landing);

and also for the purposes of all other sections of the said Act containing provisions relative to or consequent on the provisions of those sections and this order, including such sections as relate to offences and legal proceedings.

*Local Authority to enforce Order.*

11. The provisions of this order, except where it is otherwise provided, shall be executed and enforced by the local authority.

*Offences.*

12.—(1.) If a dog is landed in contravention of this order, the owner and the charterer and the master of the vessel from which it is landed, and the owner of the dog, and the person for the time being in charge thereof, and the person causing, directing, or permitting the landing, and the person landing the same, and the consignee or other person receiving or keeping it knowing it to have been landed in contravention as aforesaid, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(2.) If a dog is moved in contravention of this order, or of the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the person causing, directing, or permitting the movement, and the person moving the dog, and the consignee or other person receiving or keeping it knowing it to have been moved in contravention as aforesaid, and the occupier of the place from which the dog is moved, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(3.) If a dog is not kept isolated as required by this order, or by the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the occupier of the place where such dog is



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detained, and the person failing or neglecting to isolate the dog, shall, each according to and in respect of his own acts, defaults or omissions, be deemed guilty of an offence against the Act of 1894.

(4.) If a dog is not secured, muzzled, or confined as required by this order, or by the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the master of any vessel on board which the dog is or has been carried to Great Britain, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(5.) If a person with a view to unlawfully evade or defeat the operation of this order, or of the conditions or provisions of a license or notice thereunder, allows a dog to stray, he shall be deemed guilty of an offence against the Act of 1894.

(6.) If the owner or person in charge of a dog fails to give, produce, or do any notice, license, or thing which by this order, or by the conditions or provisions of a license or notice thereunder, he is required to give, produce, or do, he shall be deemed guilty of an offence against the Act of 1894.

*Revocation of Orders.*

13.—(1.) The orders described in the schedule to this order are hereby from and after the commencement of this order revoked: Provided that such revocation shall not invalidate or make unlawful anything done under any order hereby revoked, or affect any license or authority granted, or any right, title, obligation, or liability accrued thereunder before the commencement of this order, or interfere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty incurred under, any order hereby revoked before the commencement of this order.

(2.) A license granted under any order hereby revoked shall, from and after the commencement of this order, have effect as if it had been granted under this order, and may be enforced accordingly.

*Interpretation.*

14. In this order, unless the context otherwise requires,—

‘The board’ means the Board of Agriculture:

‘The Act of 1894’ means the Diseases of Animals Act, 1894:

‘Master’ includes a person having the charge or command of a vessel:

Other terms have the same meaning as in the Act of 1894.

*Extent.*

15. Except where otherwise expressed this order extends to Great Britain.

*Commencement.*

16. This order (except article 2 thereof) shall come into operation on the first day of January, one thousand nine hundred and two.

*Short Title.*

17. This order may be cited as the ‘Importation of Dogs Order of 1901.’

In witness whereof the Board of Agriculture have hereunto set their official seal this twelfth day of December, one thousand nine hundred and one.

[L.S.]

T. H. ELLIOTT,  
*Secretary.*



## SCHEDULE.

*Orders Revoked.*

No.	Date.	Short Title.
5611	May 7, 1897.....	The importation of Dogs Order of 1897.
5810	June 14, 1898....	The importation of Dogs (amendment) Order of 1898.
6194	December 5, 1900 .....	The importation of Dogs (amendment) Order of 1900.

## BOARD OF AGRICULTURE.

## IMPORTATION OF DOGS ORDER OF 1901.

The Board of Agriculture desire to draw the attention of local authorities and of the public generally to the provisions of this order, which regulates the landing in Great Britain of dogs brought from any country except Ireland, the Channel Islands, or the Isle of Man.

This order, which consolidates and amends the Importation of Dogs Order of 1897 and the orders amending it, takes effect from January 1, 1902, except as to Article 2, which is particularly referred to hereafter. It will be observed that no imported dog is allowed to be landed in Great Britain without a license of the Board of Agriculture obtained previous to landing.

Until March 15 next, the landing of dogs will be authorized under substantially the same conditions as to detention and isolation as have hitherto obtained. After March 15 the landing of dogs will be subject to article 2 of the order, which expressly provides that every imported dog must be detained and isolated at the expense of its owner upon premises in the occupation or under the control of a veterinary surgeon, which shall have been previously approved in writing by the board for that purpose, for a period of six calendar months, during which period the dog may not be moved from the place of detention except as provided in that article. This article does not apply in the case of an imported dog which is intended to be exported from Great Britain within forty-eight hours, or of a performing dog, with regard to the detention and isolation, of which special conditions will be imposed by the license authorizing its landing.

*Condition of Licenses.*

The board may insert in any license granted by them authorizing the landing of an imported dog, such further conditions as they think necessary or desirable for prescribing and regulating the detention and isolation of the dog, upon the place of detention authorized in the license, or for any of the purposes set forth in article 3 of the order.

Every dog which is brought to Great Britain from any other country except Ireland, the Channel Islands, or the Isle of Man, and which is not accompanied by a license issued by the Board of Agriculture authorizing the landing of the dog in Great Britain must at all times while on board a vessel in any port in Great Britain be (a) secured to some part of the vessel by a collar and chain and muzzled with a wire cage muzzle so constructed as to render it impossible for such dog while wearing the same to bite any person or animal, but not so as to prevent such dog from breathing freely or



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lapping water; or (b) confined in an inclosed part of the vessel from which the dog cannot escape. And if any such dog die, or be lost from such a vessel, the person in charge of the dog is required forthwith to give notice of such death or loss to the board.

The memorandum A 160/A as to the importation of dogs into Great Britain from abroad, dated August 8, 1900, will cease to have effect when article 2 of this order comes into operation.

In order that as little inconvenience as possible may be caused in the enforcement of the order, the board trust that local authorities will assist them by taking steps to make its contents known as widely as possible in their districts.

T. H. ELLIOTT, *Secretary*.

4, Whitehall Place,  
London, S.W.,  
Dec. 12, 1901.







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